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Sustainable Public Intellectualism: The Rhetorics of Student Scientist-Activists

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SUSTAINABLE PUBLIC INTELLECTUALISM: THE RHETORICS OF STUDENT SCIENTIST-ACTIVISTS

A Dissertation Presented

by

JESSE PRIEST

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ABSTRACT

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This dissertation is a qualitative study of the experience of undergraduate students learning how to teach issues of sustainability to their campus communities through an innovative outreach program at a large northeastern research university. While most previous work on science writing and rhetoric focuses on disciplinary, publishing, or genre practices, I examine the holistic student experience by placing outreach, writing, and the classroom in conversation with each other, illuminating how discourses can cross institutional and contextual borders. Furthermore, while most previous work involving student engagement has focused on the positive and rewarding aspects of engagement, I examine how tension and critical moments can also be productive learning experiences for students.

Using collections of empirical data including interviews, observations, and writing analysis of five undergraduate students, five undergraduate course facilitators, one undergraduate administrator, and one faculty advisor, I argue that careful combinations of reflective writing, disciplinary knowledge, and outreach can help foster student engagement and discursive

participation. This study helps teachers of composition examine ways that classrooms outside of our discipline use writing to foster student engagement. I consider what kinds of critical pedagogy the program uses that perhaps best foster the kind of change desired by student work. I discuss the relationship between the hard academic knowledge of the classroom and the outreach work done by the students by tracing important knowledge threads from the faculty advisor, through the course facilitators, to the class's assigned readings and material, and finally to outreach work. I discuss the undergraduate teaching course facilitators as both active participants in the outreach work done by the program, as well as in their role introducing new students to the program. Drawing on interviews, curriculum materials, and observations of staff meetings, I examine how the course facilitators collaboratively develop the pedagogy of the classroom.

Using the undergraduate students as examples of working scientists and public intellectuals, I discuss how their experiences bridging the gap between the hard science of the classroom and their outreach work outside of the classroom is a form of knowledge circulation. Using a Writing Across the Curriculum framework, I consider ways in which moments of tension represent productive opportunities for growth and learning. I propose a re-orientation towards how we view engagement in Composition and Rhetoric as allowing for and even welcoming moments of frustration. I discuss public intellectualism as a "shared concern" of both the sciences and the humanities; a concern that each field is differently adept at addressing. Finally, I draw some theoretical implications from the rest of my dissertation regarding how we might conceptualize public intellectualism in the future of our field.

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CHAPTER 1

SUSTAINABLE PUBLIC INTELLECTUALISM:

INTRODUCTION, BACKGROUND, AND METHODS

Introduction

In his Chair's Address at the 2014 Conference on College Composition and Communication, Howard Tinberg claimed that "our many publics are embodied in the diverse students who inhabit our classrooms, our community centers, our writing support groups, and our work places" (342). This powerful assertion steps beyond pedagogy and argues for a definition of publics that requires us to approach them as intersectional and embodied. Such a conception of the relationship between the academy and outside publics also requires attention to how we imagine the university as a space of knowledge production and sharing, a space that must be talked about in terms of access. Within the field of Composition and Rhetoric, we are historically very concerned with access, partially due to our own interdisciplinary beginnings as well as how we've used our stake in writing to foster access in the university. What remains undecided, however, is precisely how we conceive of the relationship between the university and other publics and how this conception is an inherently interdisciplinary endeavor.

There are traditional dividing lines between the academy and non-academic sites of knowledge production and distribution. Discussions of "public intellectualism" in the university are often synonymous with popularizations of knowledge in the media and other inherently non-intellectual (or even anti-intellectual) sites that must result in a loss of complexity or meaning in order for knowledge to circulate. The traditional conception of the public intellectual is a lone figure, typically a white male, to whom the uneducated masses can turn to for advice, expertise, and often an easily-digestible translation of the otherwise esoteric and inaccessible message of

the Academy. Stanley Fish, himself a public intellectual with a fraught relationship with academia, writes that a public intellectual is "someone who travels easily in the world of ideas, fairly large political and social concepts, and is able to convey the importance and complexity of those ideas in an accessible language" (Kushins). Fish's conception of a public intellectual here is both productive and outdated; it recognizes the connection between knowledge sharing and access, while also reductively tying knowledge outreach to a specific kind of political realm. That is, if we are to consider the relationship between the Academy and outside publics in a way that might best reflect (and foster) outreach and sharing of knowledge in the 21st century, we might do well to discard the traditional notion that one must reach a specific kind of "mass audience" in order to be considered doing the work of public intellectualism.

My understanding of the typical notion of public intellectualism borrows from Michael Warner, who writes that the public as a cultural form is "a matter of uptake, citation and recharacterization. It takes place not in closely argued essays but in an informal, intertextual, and multigeneric field" (145). If the public as an audience is necessitated by uptake, then one of the key aspects of public intellectualism is learning; the public intellectual is a kind of teacher who seeks to educate people outside of the speaker's discipline. Unlike the necessity of mass audience appeal, this notion of the public intellectual is one that I do not believe needs to be discarded in order to re-define the idea. As I will clarify throughout this chapter, one of the explicit goals of this project is to consider what a "newer" definition of public intellectualism might be, and then, why it might be important for us to revise our understanding of it. One way to begin unpacking this work is by looking at what kind of inter-disciplinary teaching is already happening within universities. By doing so, we may contextualize how we talk about the role of

the university and classroom settings in encouraging knowledge distribution, sharing, and access in non-classroom publics.

One place where these criteria are already being met is the world of sustainability, a branch of science explicitly concerned with outreach. By definition, Sustainability Studies attempts to approach sustainability from an "interdisciplinary perspective... Includ[ing] instruction in sustainable development, environmental policies, ethics, ecology... natural resources, sociology, and anthropology" ("Sustainability Studies"). Students and teachers in the world of sustainability are, by the nature of the field, often explicitly involved with local and community efforts. Degree-granting programs in Sustainability Studies are often housed within Environmental Science or Ecology departments, straddling a world not unlike Composition and Rhetoric: both within and separate from the field from which it emerged. Students of sustainability at the University of Massachusetts Amherst, for example, almost always take on a double major, often with an eye towards applying concerns of sustainability to another already-established field such as Business, Economics, or Ecology (Faculty Advisor Interview; Student Eco-Rep Interview #1). As a discipline, the publishing practices of Sustainability Studies reflects this interdisciplinarity, with some of the major emergent journals in the field being either new (post-2000) publications, originally special topics issues in other journals (*Journal of Cleaner Production*) or are offshoots of more established journals (*Energy and Environmental Science, Renewable Energy)*. Many journals in Sustainability Studies are also explicitly open-source (see *Sustainability*). Established faculty in Sustainability Studies tend to be specialized and educated in specific topics in Ecology or Environmental Science and seek to apply issues and questions of sustainability to these already-established scientific fields (see “Department of Environmental Conservation,” “Sustainability Curriculum Initiative”).

The field of Sustainability Studies is situated in a way that makes it a hybrid of the academic and non-academic, and so examining the way those sites are related in the field might help us address some of the problems implicit in questions of public intellectualism. Because persuading outside audiences to care about the disciplinary content knowledge of the field is such a clear stake of disciplinary success in sustainability, teaching and research are not as formally separated as is traditionally the case for many academic disciplines. To clarify: public understanding of such issues as climate change and renewable habits, is, quite literally, a matter of survival of our planet. Those engaged in any aspect of Sustainability Studies are pursuing what may be one of the most vital educational projects of our time.

My dissertation is concerned with how student scientists in Sustainability Studies at the University of Massachusetts Amherst participate in roles that may function to re-orient how we talk about public intellectualism. It is important to note here that UMass is nationally known for its efforts in sustainability, including a 2011 Gold Star award from the Association for the Advancement of Sustainability in Higher Education (AASHE), as well as multiple National Climate Leadership Awards. As a researcher, I was drawn to the vibrant environmentalist community that I found here; being able to remain focused in local phenomena allowed me to ground what were initially much broader questions about outreach and public intellectualism.

Outreach in sustainability allows students to create new ways of spreading academic knowledge to increase access to a wider public. John Trimbur writes that

> studies of the popularization of scientific knowledge have analyzed how science writers employ various genres to translate the findings of practicing scientists to educated readers… what such analyses fail to explore, however, is how laypeople might re-

> imagine their relationship to scientific expertise and become actively engaged with scientists in constructing scientific knowledge. (230-231)

My dissertation questions how student activism and outreach in sustainability represents a re-orientation in the circulation of scientific knowledge. I am curious how these movements may suggest a popularization that gives us a better understanding of how those removed from traditional knowledge-making roles in the Academy can both access and influence the creation of scientific knowledge. Here, students are outside of the role of the expert in traditional discussions of both scientific expertise and public intellectualism; however, their relationship with publics outside of their classrooms in their outreach work allows them to function as experts. Regarding the stakes of re-conceptualizing circulation as a process-based activity, Trimbur writes about the importance of understanding

> how that act of translation necessarily participates in and shapes the circulation of biomedical discourse in ways that go beyond simple information transfer and the attendant problem of accuracy/inaccuracy that so often frames such assignments. To do this, we need to reconstruct the systems of distribution and exchange through which messages about breast cancer circulate; to identify how the means of production (laboratories, equipment, scientific expertise) are distributed, materialized, and reproduced; and to consider how moments of consumption are articulated within this circuit. (213)

Student-driven outreach in sustainability is horizontal instead of vertical; instead of the already-established and successful disciplinary expert attempting to pass on knowledge to the uneducated in a top-down fashion, the kind of outreach often done in sustainability involves students just as

likely as it might involve advanced experts. As such, this form of scientific knowledge circulation represents the sort of re-orientation that Trimbur is suggesting about how scientific messages are spread. Outreach in this context creates a removal of the traditional hierarchical relationship necessitated by the idea of the public intellectual; novice initiates to the discipline, as part of their process of becoming disciplinary experts, teach the issues of sustainability to other audiences just as easily considered novices.

This kind of multifaceted participation allowed by sustainable activism and outreach involves students functioning outside of subjectivities the Academy has intended for them. These forms of participation are suggestive of pushes within Composition-Rhetoric for interdisciplinary and cross-genre writing and circulation that foster multiple possibilities for both discursive participation and discursive creativity. Sustainability work at UMass and elsewhere often involves students engaging in work that is by necessity interdisciplinary and public. This project seeks to help those within Comp-Rhet learn about public intellectualism and outreach within the sciences, and can contribute to how we imagine the role of the academy in fostering knowledge production in non-academic publics, and what kind of role students may have in doing so. Furthermore, I hope that this study can help us learn how students are negotiating these complicated and interesting roles, specifically in terms of what they see as being important or challenging in their work. Outside of Comp-Rhet, this project speaks directly to those within sustainability and the sciences more broadly who wish to become cognizant of the kinds of specific pedagogical decisions around writing and disciplinarity that might best foster successful outreach and learning. Lastly, this project is relevant to those within Higher Education teaching and administration who are concerned with inter-disciplinary pedagogy and student engagement.

Background

Composition's public turn has unfolded in ways that are continuously encouraging us to recognize the publics, as Tinberg suggests, that our students embody. Summarizing her notion of the public turn, Paula Mathieu emphasizes that "the community outside the classroom and its concerns become part of the relevant rhetorical situation of a writing classroom" (11). The public turn asks us to extend outward; to consider ways in which outside publics can and should be made relevant to the work that we do in our classrooms and in our research. What seems to be missing in these important discussions, however, is the inverse of this notion: how do we make our disciplinary work relevant to these publics? What would such an endeavor look like, and would it even be something worth doing?

Many of our disciplinary threads have considered the complexities of how texts inhabit, embody and are constrained by convention, as well as how disciplines themselves are reflective of the conventions that compromise them. Genre theorists talk about the way that conventions restrain and shape textual production, as Anthony Paré's succinct claim that "institutional genres are successful patterns in local discursive forms and functions" (138). Well-explored within genre studies are occurrences of how genres, as normalizing conventions, break down in numerous ways, as Paré writes:

> the illusion of normalcy may be cracked or exposed at certain moments; when an event occurs that does not match the anticipated, socially construed exigence to which the genre responses… when newcomer first begin to participate in a genre and find it 'unnatural' or counter to their own discourse habits and aims. (141)

I find in Paré's claim about the limits of genre functioning a connection to what happens to disciplines when they encounter a public: that public interaction is a form of genre disruption. Further, I believe that genre is an aspect of disciplinarity (see Canagarajah) that is better explored than other aspects of disciplinary "Contact Zones" (Pratt) where conventions and functions seem to break down when pushed outside of their normal functioning.

What these narratives have yet to account for are tangible practices or disciplinary moves that might offer us ways to speak *back* to our publics; to not stop the public turn in recognizing the complexities of the publics embodied by our students, but to push that realization a step further and ask what it would mean to have those publics explicitly recognize us, as well. I would also argue that prevalent and important are examinations of what interesting things are happening, and what we have yet to do is better understand what we can do, as compositionists and rhetoricians, to make ourselves interesting. Relevant to this is John Trimbur's claim that "there seems to be a radical disconnect between the desire of academic leftists to make their work relevant to ordinary people," (212) which further pushes the problem of "cultural relevancy" into a perhaps intentional disciplinary obfuscation. Alan G. Gross and Arthur Walzer write about a public "revival of rhetoric," in examining the discord between rhetorical inquiry and scientific debate as being one of the failings of the public *Challenger* disaster. They write that

> we are approaching, so our best physicists tell is, a 'theory of everything'; at the same time, we know neither the principles of the good life for us, nor the more general principles of the good life for humankind, nor the rules of correspondence by which we

> can apply these two sets of principles to the on-going cognitive and ethical dilemmas of organizational life. (90)

While Gross and Walzer and others (see my forthcoming discussion regarding ecocomposition) have smartly examined the importance of rhetoric within scientific inquiry and the massive importance the scientific inquiry has within the public domain, these threads have never gained momentum in our discipline beyond sub-fields. Indeed, rhetoric's importance may not be understated here, as persuasion seems ever-present in the relationship that widely successful public intellectuals in the sciences have with their audiences; even more pervasive, I would contend, than the transmission of hard data (which arguably would be a harder thing to do than for those in the humanities!). While scientists may balk at Aristotle's claim that "persuasion is achieved by the speaker's personal character when the speech is so spoken as to make us think him credible," (1356a) this persuasive aspect of communication nevertheless dictates much of how a disciplines' knowledge is communicated to outside audiences. Rhetoric, then, may be understood as both a necessary and a missing component of both scientific and public discourse.

If this initial theory is true (or if it has any degree of trueness to it at all), then I wonder what we might be able to learn by looking at the relationship between the disciplinary knowledge of the sciences and the ways in which this work is tangibly translated to people outside of the disciplines. What are scientists doing to give it, say, the high degree of public attention it has received in the early 21st century? Do scientists, when considering their relationship between their disciplinary work and their publics, conceive of that relationship differently than we might in the humanities? Is there something as of yet undetermined that fundamentally separates the *work* of the sciences from the *work* of the humanities that changes what public appeal looks like

for these disciplines? Or, is the public-ness of the humanities (especially of Composition and Rhetoric) an already-determined thing, folded as it is into structures of citizenship, democracy, and civic participation? In his discussion of the mass appeal of Stanley Fish's oft-adopted "current traditionalist" (180) approach to writing and rhetoric, Sean Zwagerman writes that

> as with style, *rhetoric* likely doesn't mean to the public what it means to rhetoricians and compositionists. Furthermore, there may be disconnections or outright contradictions between people's definitions and valuations of rhetoric and their description of sound writing instruction. (478)

Have we explored the ways in which our field can be made increasingly relevant to our publics? David Russell writes that early Writing Across the Curriculum (WAC) emerged in part from what he calls another "revival of rhetoric,' which not only gave composition teachers a professional identity apart from literature...but also provided institutions with recognized experts who could design and implement curricular reforms in writing instruction" (17). One of my interests with this project is to apply the ideas behind WAC to this aspect of writing in the sciences; to examine how writing and pedagogy are used to foster engagement. Here, I think rhetoric can be used to provide a vocabulary as well as a methodology for both scientists and humanists to talk more concretely about the kinds of work they do in their engagement with outside publics.

Engagement through writing and discursive participation has historically been an important concern of Composition and Rhetoric, especially within Writing Across the Curriculum and Writing in the Disciplines. Disciplinary participation has been described as "social as well as cognitive act" (Brodkey 47), always contextualized by "wider social forces that

structure the production of knowledge" (Trimbur 442); these disciplinary threads are explicitly concerned with improving how we talk about (and enact) the relationship between writing and our participation in our lived communities and institutions. Christopher Thaiss writes that WAC is concerned with pushing against the tendency of "the public, including many academics [to talk] about writing as if were a simple concept and as if everyone meant the same thing by it" (85) through "discussions and exchanges of information" (94) across multiple disciplines. These concerns translate easily to pedagogy, where the composition instructor attempts to help her students view writing as an expression of (and at times resistance to) one's membership within larger social communities.

The WAC/WID (Writing in the Disciplines) focus on writing as a specific, tangible and unique phenomenon of disciplinary expression drives much of this project's inquiries. Early WAC theorist Janet Emig emphasizes the "importance of engagement in, as well as self-selection of, a subject for the student learning to write and writing to learn" (126). Emig's argument for "writing itself as a central academic process" (127) is *lingua franca* for WAC/WID theorists, but remains to be formalized or even universally valued in disciplines like the sciences that might obscure the role of writing. As such, much of this project, even my interjections in other subfields, is implicitly done by turning WAC/WID notions of writing to issues that may not traditionally be considered realms where writing instruction is valued.

Science communication to the public relies on both scientific experts understanding their audience and their intended audiences understanding the experts' messages, which is what Philippa Spoel and Chantal Barriault define as the "rhetorical challenge" of public engagement (87). Diana Wegner expresses the frustration often present in "studies of public participation in

environmental decision-making…[which] yield scenarios of unproductive processes of public participation, usually generating frustration among citizens (114). When we talk about the public in Composition and Rhetoric, we traditionally talk about specific forms of public discourse. The field of Rhetoric has been tied to public policy since pre-Aristotle, and this connection continues to discussions of public discourse and argument.

Most of these evaluations are folded into explicitly WAC-based conversations because of the focus on writing. Further, discussions of the rhetoric of science have typically focused on scientists and not students, or experts and not the lay public. Michael Zerbe writes that "Scientific discourse may…not warrant interest from rhetoric and composition because of the perception that it is absent from the public spaces with which we normally associate civic discourse" (39). What we have not done enough of, however, is look at the places where civic discourse and scientific expertise overlap, especially with regard to beginning science students and their process of learning the ways of functioning within their disciplines.

Some within Composition and Rhetoric have also written about the question of making the work of the humanities "culturally relevant" (Weisser 117), which contrasts with Zerbe's claim that science functions as a "power discourse" (15) within our society. As such, considering what *makes* science a culturally-powerful discourse might help us develop ways of talking about the humanities that could increase the ways in which it is valued and recognize as culturally relevant. While this is an important endeavor, I might instead align myself with scholars (see Farmer, Warner) within the field who disagree with such a binary-laden assumption that we are either relevant or we are not, which is how discussions of scientific communication often proceed. Drawing on Warner's notion of counterpublics, Farmer examines specific "cultural

public" interactions that allow for "social formations, established primarily through texts, whose constructed identity functions, in some measure, to oppose and critique the accepted norms of the society in which it emerges" (50). As Zerbe claims, however, scientific discourse is the

> discourse that our society assigns the responsibility of performing the day-to-day work of making sense of ourselves and our surroundings, both epistemologically and ontologically. This authority should be reason enough to make scientific discourse a central component of rhetorical study for all students. (43)

Zerbe notes that one issue with science rhetoric is its relative inaccessibility to those in the humanities due to vast differences in disciplinary knowledge. Zerbe's notion of science as a culturally *dominant* discourse is perhaps a more productive inquiry than discussing cultural relevancy, in part because it allows for a more ideologically-aware notion of how power functions in society. If scientific discourse is a culturally dominant one, then it may be important for compositionists to study both in our endeavors to learn more about how discourses and publics function, as well as to attempt to address questions of the humanities' "cultural relevancy." What Zerbe doesn't recognize in his discussion of the cultural dominance of scientific discourse is kind of science done in the name of outreach and activism that typically *do* draw much more explicitly on our own disciplinary notions of rhetoric. Furthermore, the emphasis on local and communal efforts in Sustainability Studies may offer a different conception of scientific discourse: a scientific discourse that does not necessarily function in ways that are ideologically marginalizing or exclusionary (see Chapter 5).

Within Composition and Rhetoric, perhaps the closest we have come to formally crossing the disciplinary divide between us and the sciences is through the work of ecocomposition.

While WAC draws together interdisciplinary concerns around writing (and often creates programs that are concerned with pedagogies within both the sciences and the humanities), ecocomposition seeks to establish an explicit connection between composition studies and ecology, as Sidney Dobrin and Christian Weisser write that "composition's roots do indeed tap into ecological sciences in their current incarnations…composition studies is very much an ecological inquiry" (259). Ecocomposition functions both as a theoretical frame and a possible methodological approach to the relationship between agents and systems. The ecological perspective argues for a conceptual framework where difference *is* the norm, as networks and ecologies are only made up of relational differences. Ecocomposition remains the closest endeavor in Composition and Rhetoric to move towards explicitly discussing environmental and scientific issues, and shares some of the concerns of the WAC movement with regard to the need for interdisciplinary examinations of writing and its contexts.

Dobrin and Weisser suggest that ecocomposition must "become a site for... public intellectualism" and they argue that "ecocomposition sees the university as the public, all part of the same system, all the same place" (95). Furthermore, Dobrin and Weisser also claim that "compositionists already talk about the consumption and production of discourse in much the same way ecologists discuss the consumption and production of energy" (18). As a subfield, ecocomposition draws explicitly from earlier movements within the field to recognize the importance of considering physical location as part of our definition of context, as ecology is by necessity dependent on location. Nedra Reynolds writes that "*where* writing instruction takes places has everything to do with *how*" (237), and calls for returning our pedagogies to "a spatial politics of writing instruction [that] would resist notions of transparent space that deny the connections to material conditions" and account for the ways in which "time-space compression

affects composition's workers" (252). In other words, the ways that we construct our metaphors and assumptions about space in composition has a tangible effect on the actual environments that we enact and the ways we inhabit subject positions within those environments. As Reynolds is suggesting, the explicit attention to the relationship between writing and ecology can help us more critically consider the material conditions that make up our various environments and the institutions that inhabit those environments.

What I hope to bring to these fields with this project is an increased understanding of how public intellectualism functions in the sciences, especially among the students themselves. By doing so, I believe that we are discussing writing and outreach in ways that step across disciplinary boundaries. Thaiss writes that WAC theory will work best if it continues to "enable further blurring of the differences between school and community" (99), and that our pedagogies may also benefit from such a blurring. My examination of both the classroom and outreach aspects of the Eco-Rep program seeks to suggest such a push toward discussing the role of the university in practicing habits of circulation and accessibility to non-academic publics. This project may also suggest pedagogies for fostering student engagement in higher education. More generally, I'm hoping to arrive at a better understanding of what a revised definition of the public intellectual might entail, how Comp-Rhet writing pedagogy might help scientist-activists better formalize their outreach practices, and general suggestions for teachers and administrators who are curious about fostering increased disciplinary engagement with their students.

Gross and Walzer write that, in the *Challenger* disaster, the failings of scientific deliberation revolved around "an ethical dilemma, a problem that required that a cognitive dilemma be viewed from an ethical perspective. This ethical dilemma was not even perceived"

(86). Earlier, I outlined the importance--more simply, the urgency--of sustainability. The lack of the kind of near-universal public understanding of the importance of climate change may be seen as a failure of scientific discourse to adequately function in a way that can create systemic change. As such, if disciplinary success in the sciences relies on some form of what we might call uptake in the form of public change, it is evident that scientific inquiry alone is not enough to create mass persuasion. What seems to be missing in scientific inquiry, *especially* as it relates to interactions with its publics, is the ethical and the persuasive as a domain of critical thought equal to the rational.

Marilyn Cooper writes that "writers not only analyze or invent audiences, they, more significantly, communicate with and know their audiences" (192) and, further, that "writing is one of the activities by which we locate ourselves in the enmeshed systems that make up the social world" (195).The driving force behind this project has been, from the beginning, my interest in how we can expand the ways in which our disciplinary expertise in and around writing can help us both expand our notion of audience and create constantly-increasing dialogic relationships with our publics. What seems to be missing in our desires as a field to pursue increased interconnectedness with our publics is an understanding of what these moves might look like.

The purpose of this project is to examine how rhetoric may do both.

Site

In order to address these research goals, I spent a semester conducting a case study of the writing, pedagogy and outreach practices of the University of Massachusetts Amherst Eco-Rep Program. The Eco-Rep program is an innovative opportunity that combines coursework with outreach in an attempt to train undergraduate students to become skilled at raising community awareness of sustainability issues. The Eco-Rep program is an opportunity for students to become engaged in

> working towards environmental literacy and leadership both within the program, and on the campus at large. This is an academic course open to students of all interests and education levels; it is especially encouraged to those who wish to gain or expand their knowledge in sustainability and environmental literacy. Eco-Reps build a foundational knowledge surrounding issues of sustainability and explore how best to raise awareness about these issues amongst their peers. Focusing on the role and impact of the individual, Eco-Reps work to promote environmentally responsible behavior in the campus community. (Eco-Rep Program)

Logistically, the Eco-Rep program consists of a 2-credit College of Natural Sciences course, ENVIRSCI 297F, which includes student participation in projects and outreach across campus. There are six sections of the course every semester, with each section being offered across campus in a different residential area. Each section typically has 6 to 8 students in it. The course is a dialogue-based seminar that is taught by undergraduate course facilitators who are themselves former Eco-Reps. Each section is overseen by a program manager, who is also an undergraduate and former Eco-Rep and course facilitator. Together with a faculty advisor, the

program manager and course facilitators collaborate to develop pedagogy through training and regular meetings. The goal of the Eco-Rep program is for students to build a foundational awareness of issues of sustainability, and use that knowledge to foster sustainability awareness within their communities on campus.

The classroom aspect of the Eco-Rep program overlaps with students' involvement in their residence halls and campus community by spending class time collaboratively developing outreach activities. Students take their Eco-Rep work in the class and craft activities and material explicitly addressed to the larger campus community, with the classroom emphasis on the individual's involvement in sustainability asking students to critically consider how they might best impact their own communities. Working collaboratively, students are tasked with developing, over the course of the semester, a variety of materials to impact their campus community. Students create outreach materials like videos and posters, and host awareness-raising social or outreach events. The goals of these activities are twofold: educating their peers on sustainability issues and suggesting individual behavioral changes to address these issues. Students work closely with Residence Life staff in their residence halls and other on-campus departments and offices in developing, promoting, and publishing these events and materials. These outreach projects often directly reflect the thematic content of the class; examples of these (which is the focus of Chapter IV of this project) include innovative recycling programs, student-led educational activities across campus, increased access to green resources in academic offices, and visible campus events designed to spread awareness of the dangers of pollution and waste mismanagement.

The University of Massachusetts Amherst Eco-Rep Program represents a localized site for the now-national Eco-Rep movement that began at Tufts in 2001. In 2015, the Association for the Advancement of Sustainability in Higher Education (AASHE) has created a specific criteria and guideline for universities seeking to establish their own Eco-Rep program (see Erickson). This guide draws from different Eco-Rep programs throughout the country to create shared guidelines for each. The guide's criteria for program design is outlined below:

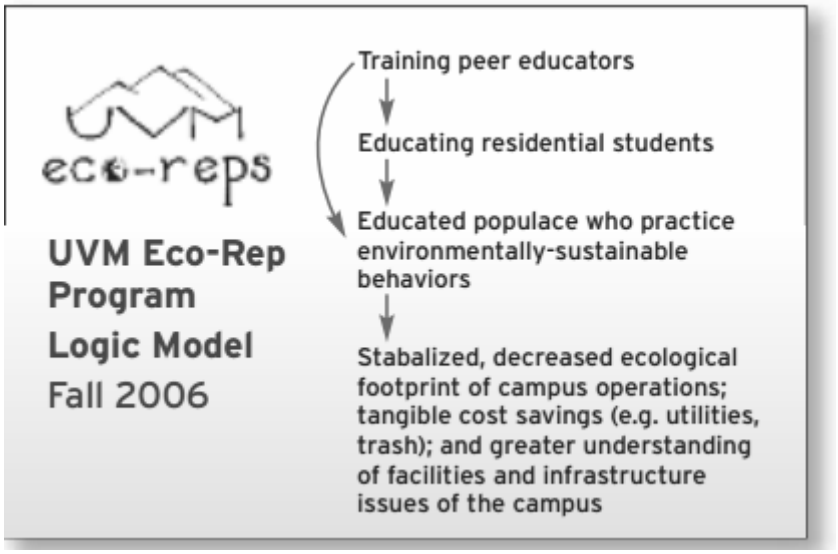


Figure 1.1: Model of an Eco-Rep Program

The Program also contains a built-in process for students to progress as Eco-Reps and course facilitators. Current Eco-Reps can repeat the class for one additional credit through the ENS department, and students often do so with explicit interest to continue their work on ongoing campus sustainability projects. Eco-Reps who take the course multiple times become more and more experienced teaching sustainability to their communities, and the facilitators often talk about the opportunity for current Eco-Reps to eventually apply to become course facilitators. Becoming a facilitator requires one semester of Eco-Rep work, although often the

course facilitators work for more than one semester with the program. Student Eco-Reps earn course credits and outreach experience; course facilitators are paid and gain teaching experience. While the Eco-Rep guide offers suggestions for specific program makeup and structure, the UMass model of current Eco-Reps becoming course facilitators is offered as a unique and innovative aspect of the UMass program, as featured in the guidebook below:

University of Massachusetts Amherst Eco-Rep Program

Mary Harrison, University of Massachusetts Amherst

Average # of Reps: 50

Year Started: Fall 2008

Compensation: Two college credits

Management Structure: Five student facilitators and student Program Manager, supervised by staff Sustainability Manager

Institution: University of Massachusetts, Amherst, public, 21,300 undergraduates

Website: http://www.umass.edu/ecorep

Best Practice/Successful Element: We allow students to interact with their peers and exchange information, thoughts, and questions about environmental issues and their impacts. The peer-to-peer facilitation provides a unique learning experience for Eco-Reps, and helps them to enhance their own understanding of what it means to be sustainable, as well as the impact that an individual can make.

Figure 1.2: University of Massachusetts Eco-Rep Program

Because of some specific aspects of the program, the Eco-Rep Program was an ideal site for me to unpack my research goals. The Eco-Rep program represents an opportunity for students to function both inside and outside of institutional frameworks in a way that, while not (usually) directly oppositional, represents alternative possibilities for the production and circulation of academic knowledge. Through their engagement work in their residential halls and campus community, the Eco-Reps engage in a complicated balance between academic knowledge production and outreach to lay audiences. While the residential halls and wider campus community still represent part of the site of academic knowledge production, they are distinctly removed from both the classroom and from the shared discourse community of science. For the Eco-Reps (and for the course facilitators who are, again, undergraduate former

Eco-Reps) this role creates a space to become actively engaged in their own learning through the challenge of translating their classroom knowledge and expertise to outside audiences. As a research site, the Eco-Rep program gave me a unique example of public outreach of science taking place among very beginning students. As I will unpack throughout this project, the Eco-Rep Program evidences peer learning at a variety of levels, including the Eco-Reps themselves, the course facilitators, and the program manager. As such, my research with the program has allowed me a window into student learning through outreach happening at three distinct levels in students' own learning processes.

The overlap between academic and lived experience through outreach created by the Eco-Rep program is also a rich example of student engagement. The Association of American Colleges and Universities defines Community-Based Learning as an example of a High-Impact Practice (HIP) that can "give students direct experience with issues they are studying in the curriculum and with ongoing efforts to analyze and solve problems in the community... the opportunity students have to both apply what they are learning in real-world settings and reflect in a classroom setting on their service experiences" (AAC&U). I argue that the level of student engagement created through the multi-faceted aspect of the Eco-Rep program can be treated as a HIP through Community-Based Learning and other criteria. The Eco-Rep program represents a clear example of student engagement through the connections they make between academic knowledge and their lives outside of the classroom; connections that invariably involve the use of their own voice and authorship, as well as their negotiation among discourse communities. One broader application of my case study is to examine how the program allows students to negotiate academic work and their public outreach.

Research Questions

My questions for my case study involve the roles inhabited by members of the Eco-Rep program, and how those roles are fostered by the classroom setting and how they play out outside of the classroom. These questions are built around analyzing the relationship of the classroom space to non-classroom spaces in creating and publishing sustainability outreach. Each of these questions is designed to allow me to examine this relationship from a slightly different angle, drawing from students and facilitators at different stages of involvement within the program. These localized questions about individual student involvement in the Eco-Rep program are also suggestive of my larger concerns about the relationship between science within the classroom and science outreach.

1) How does knowledge circulate in the program, both in the classroom aspect and in the student outreach projects?
2) How do the students negotiate the knowledges of the program and their engagement with outside audiences?
3) How do the course facilitators and administrators negotiate the disciplinary knowledge of the program with the needs of outreach work?
4) Do the students and facilitators perceive a change in their role as they participate in the program?

Foundational to my use of "knowledges" in the first question relies on a conceptualization that knowledge involves the integration of multiple written, spoken and performed discourses. My use of knowledges in these research questions draws on James Gee's reference to discourse as "ways of being in the world… integrat[ing] words, acts, values, beliefs,

attitudes, social identities, as well as gestures, glances, body positions, and clothes… the appropriate costume and instructions on how to act, talk, and often write, so as to take on a particular social role" (142). That is, I don't believe that viewing the classroom space as one discourse and the outreach space as another, even if those discourses themselves were fluid, would allow for the kinds of communities and performances of knowledge that I expect to find in my study. Patricia Bizzell writes that that "alternative or mixed discourse forms…allow their practitioners to do intellectual work in ways they could not if confined to traditional academic discourse," (74) and for the sake of my study I believe the most productive way to conceptualize discourses will be to see them as inherently mixed. This claim comes both from my own belief about how discourses function as well as the logistical makeup of the Eco-Rep program which itself mixes discursive participation across academic and nonacademic settings. Broadly, I'm curious about how outreach and classroom work will show students using knowledge and performing discourse differently, and examining where and how those differences might occur.

My second question focuses on how the student Eco-Reps manage the intersections and differences between the classroom space and their outreach work. 2) How do the students negotiate the knowledges of the program and their engagement with outside audiences? By negotiate, I mean the ways in which aspects of the classroom are reflected in their outreach work, and which aspects of their outreach work impact their participation in the classroom space. I imagine that I will see certain aspects of the class directly impact the choices that students make outside of the class, and that there will also be aspects of the classroom that aren't directly connected to their outreach work. Further, I am interested in places where students see their participation in the Eco-Rep program connecting to other aspects of their lives. That is, the process of negotiating the discourses of the Eco-Rep program will likely involve students

drawing on their own interests. As the pedagogy of the Eco-Rep program in various ways explicitly asks students to draw on their own interests and memberships in social groups, I'm curious about how students see these other outside factors influencing their work in the program.

My third question examines the relationship between the course facilitators (as well as those above them) and the various discourses of the Eco-Rep program. 3) How do the course facilitators and administrators negotiate the disciplinary knowledge of the program with the needs of outreach work? The purpose of this question is to consider the pedagogy of the course to further analyze the relationship between the classroom and non-classroom sites. I'm curious what the teachers and program managers prioritize and what goes into building the course, so that I might put that into conversation with my student-oriented analyses.

My fourth question focuses explicitly on my observations of student Eco-Reps and course facilitators at different points in their participation in the program. 4) Do the students, facilitators, and administrators perceive a change in their role as they participate in the program? This is important because I am curious about what perceptions of their work students will have before they engage in substantial outreach; what sorts of things they imagine or predict will help them balance between the classroom and their outreach work. Then, after having done outreach (and had their outreach be received by an audience) what the students believe they might have done differently, or how that process has affected them from their initial perceptions of the work.

Methodology

Overview of the Study

My case study falls under what Janice M. Lauer and J. William Asher call "qualitative descriptive research," in that my analysis of the Eco-Rep program attempts to be holistic by studying the "whole environment" of the program (23). As Lauer and Asher suggest, I am not attempting to establish "cause-and-effect relationships among variables," but rather to examine the key aspects of the program that seem important to reaching the program's goals. Further, while my case study is not explicitly ethnographic, I draw on aspects of ethnographic observation by examining "subjects in context... [through] observation" (Lauer and Asher 39). I will maintain a role of "observer outside the scene" (41) with as little intervention as possible, saving my discussions with participants for my formal interviews. When analyzing my research data, I coded for important themes and ideas that seem suggestive of how the Eco-Reps themselves view their work. Following Anne Haas Dyson and Celia Genishi in “On the Case: Approaches to Language and Literacy Research,” I allow my coding process to lead me from larger ideas to more specific ones as I re-read the interview transcripts (see Dyson and Genishi 85).

Through gathering and coding my data, I eventually attempt to gesture towards places where I believe I may construct grounded theory from my research. Migliaccio and Melzer write that grounded theory "lends itself perfectly to the analysis of writing, as it allows researchers to assess department-specific writing more clearly...researchers can gain a clearer picture of what is occurring in student writing as well as how faculty are evaluating student writing" (80). The criteria suggested by grounded theory (Glaser) helped me transition from my coding process to

establishing more formative suggestions outside of simply my own data. Drawing on Sarah Finn's usage of data collection and analysis as a "recursive process," (52) I continuously re-examined my data after each round of analysis as I tuned my sense as a researcher of what I was observing. My goal in doing so is to work towards establishing Guba and Lincoln's criteria for credibility as being "believable from the perspective of the participant in the research" and transferability as "degree to which the results of qualitative research can be generalized or transferred to other contexts or settings" (Qualitative Validity). Throughout my project, I stay as close to my data as possible and be explicit when making clear assumptions or generalizations; in doing so, I aim for a readability that remains a fair representation of the Eco-Rep Program as I observed it, as well as rhetorical clarity for when I am making my own wider claims.

Participant Requirement and Recruitment

My procedure for recruiting subjects began with discussions with the Eco-Rep program manager and faculty advisor. I explained the study and ask to observe Eco-Rep staff meetings. At a staff meeting, I recruited course facilitators by explaining the study and handing out informed consent forms, with the goal of using four course facilitators as case study participants. I interviewed the course facilitators, program manager, and faculty advisor each once during the semester. I also asked them to share with me course materials, including lesson plans and assigned readings. I recruited students from the courses taught by my course facilitator case study participants. I explained the study at an Eco-Rep class meeting, and handed out informed consent forms to the students. At the next meeting, I recruited four case study students by describing the study again, and explaining what they would do if they consented to be case study students.

Overview of Data

With student and faculty consent, as well as official IRB approval (received early 2015), this study involved eight course visits; four interviews with current student Eco-Reps; eight interviews with Eco-Rep course facilitators, one interview with the Program Manager, and one interview with the faculty advisor who oversees the course. I attended two lesson planning meetings. With my Eco-Rep student participants, I attended three Eco-Rep outreach activities on campus. I collected writing and outreach material produced in the class and Eco-Rep work, totaling approximately 30 pages of written and visual material from the students. I also collected written pedagogical material from the course facilitators, including lesson plans and activities and their own reflective writing written for their lesson planning meetings, totaling approximately 20 pages of written material. For a complete breakdown of all my data collected and referenced throughout, see the Appendix.

For my interviews, I created audio recordings. These recordings were transcribed and I used inductive coding to identify themes. For my class visits, I did not create audio recordings but rather took my own notes. I took notes on overall class interactions. Any notes regarding specific participation were only taken for those who have consented to participation. Otherwise, I only took notes of content and class organization.

Methodology for Research Question #1

How does knowledge circulate in the program, both in the classroom aspect and in the student outreach projects? This question attempts to provide me with a fairly holistic understanding of the various important factors that make up student participation within the Eco-Rep program. As

such, I drew on various sources of data to help build my understanding of what I am calling the knowledge circulation of the program. Observing Eco-Rep staff meetings and reading course material, including assigned readings for the classes that I observed, helped me contextualize what I observe during my class observations and outreach activities. During these observations, I paid attention to class structure, including discussions and the exchanges between my course facilitator participants and my student participants.

To help me answer this question, I also drew from places in my interviews where I noticed students and facilitators commenting on the relationship of their work in the class to their outreach work, as well as how these spaces are related to other contexts in their lives. As my conception of discourses in this project relies on multiplicities of identities, I looked for examples of values, beliefs, and social identities intersecting in the various aspects of the program.

Methodology for Research Question #2

How do the students negotiate the knowledges of the program and their engagement with outside audiences? To address this question, I drew more heavily on my student-centered sources, particularly my interviews with the student Eco-Reps. These interviews took place near the end of the semester. My initial interview questions for my student Eco-Rep participants helped me get a sense of how they view the program and their work before doing the majority of their outreach activities. These questions helped teach me what the students are bringing to the program. These interview questions were:

1. How did you get involved with the Eco-Rep program?

2. How do you imagine that your work as an Eco-Rep will connect to your other academic work?
3. How do you imagine that it will connect to your life outside of the classroom?
4. How do you feel about issues of sustainability? How do you see yourself involved in that work?
5. Do you think that the Eco-Rep program is popular on campus? How do you think the campus views the program?
6. How do you imagine your role as an Eco-Rep will be different or similar to the role you have in other courses?
7. What do you believe is the purpose of outreach work? Why?
8. What do you think will be the relationship between the work you do in class and your outreach work?

For questions 2 and 3, I also drew from my student participants' reflective writing from the class. These weekly assignments ask the students to engage in critical self-reflection regarding their own beliefs about and participation in that week's theme. By reflecting on these themes, which are all contemporary issues in sustainability (recycling, waste management, food and resource management, etc.) students are asked to consider the overlap between their daily lives and their work as members of the program.

When observing the Eco-Rep outreach programs and activities, I drew on what Beverly J. Moss and Del Hymes describe as "ethnography of communication" to emphasize my examination of "the context that contributes to acts of writing and written products" (Moss 156). My purpose was to gain an understanding of the emic perspective of the student Eco-Reps; considering primarily what they believe to be the function and most important aspects of their

outreach work. Ken Hyland claims that writers "make predictions about how readers are likely to react to their arguments…this process of audience evaluation…points to the ways language is related to specific cultural and institutional contexts" (182). Because the Eco-Reps and their community audiences are members of a community who might occupy different roles, I'm curious about the ways in which the Eco-Reps might make predictions about their audiences' responses. Christine Tardy's notion of "extra-textual identity… aspects of an author's identity that are constructed outside of written communication…part of the broader and complex construct of identity and identity construction" (68) is a lens that allows me to examine the outreach materials created by the Eco-Reps as well as both the classroom and community contexts that they occur in. I looked for aspects of students' extra-textual identity in their participation in the program through their writing and outreach material.

Methodology for Research Question #3

How do the course facilitators and administrators negotiate the disciplinary knowledge of the program with the needs of outreach work? This question provides an analogous look at the program to question #2, drawing not on the students' perspective but on the teachers and supervisors of the class. Where that question involves aspects of student negotiation of the discourses in the program involving their possible outside interests and non-classroom spaces, this question focuses more on the pedagogical side of the program. My questions for the course facilitators were:

1. How did you become an Eco-Rep facilitator?
2. What does a typical class meeting look like?

3. How do you view the relationship between writing and outreach in your course?
4. What is the most challenging aspect of facilitating the course?
5. How do you see this course relating to or being different from other courses students might be taking?
6. How do you see this course relating to academic knowledge and research?
7. How has being a course facilitator changed your understanding of writing, knowledge, or research?
8. How do you see this course impacting the campus?
9. How do you see the role of the Course Facilitator being different from the role of the student Eco-Reps?
10. What was something in your teaching that surprised you this semester?
11. Comment on one specific class meeting in terms of your goal, your role, and the role of your students.
12. What do you think is the most valuable thing about the Eco-Rep program?
13. What are your plans for the future? How do you see those plans connecting to your work as a course facilitator?
14. I will also ask a couple of specific questions based on my observation of their class.

To address this question, I also observed lesson planning staff meetings, including development of lessons and activities I observed in the classroom with insight into the goals of the staff in creating them, and collected written reflections and teaching material from the facilitators. These questions also helped me get a sense of the progress the Eco-Rep program allows for: student Eco-Reps becoming course facilitators. This knowledge helped me observe

the interplay of discourses in the program, and to address some of the aspects of change that I raise in question #4.

My interviews with the program manager and faculty advisor gave me a sense of how those most in control of the program's pedagogy view the class and outreach work. My interview questions for the program manager were:

1. How did you become the program manager?
2. What does your role entail?
3. How do you develop pedagogy for the class? How do you see your role in the lesson planning/staff meetings? How would you describe your role in relationship to the facilitators? To the students? To the faculty advisor?
4. How do you view the relationship between writing and outreach in the program? Think about one specific example of a reading/writing unit: mountaintop removal or tracing the process of food production: how do those readings balance between academic/popular, how are they used?
5. What is the most challenging aspect of your job?
6. How do you see the program relating to academic knowledge and research? (how do you see the program and the course fitting in with the wider discipline of Environmental Science?)
7. How has being the Program Manager changed your understanding of writing, knowledge, or research?
8. How do you see this course impacting the campus?
9. Based on your experience, what advice would you give to other teachers?

10. What do you think is the most valuable thing about the Eco-Rep program?
11. What are your plans for the future? How do you see those plans connecting to your work as the Program Manager?
12. I will also ask a couple of specific questions based on my observations of the lesson planning and staff meetings.

With these questions, I was curious how what the program manager views as being important about the program and the relationship between the classroom and outreach compare to what values and perspectives the student Eco-Reps expressed. My interview questions for the faculty advisor were:

1. How did you become the faculty advisor for the program?
2. What does your role entail?
3. How do you develop pedagogy for the class?
4. How do you view the relationship between writing and outreach in the program?
5. What is the most challenging aspect of your job?
6. How do you see the program relating to academic knowledge and research?
7. How has being the faculty advisor changed your understanding of writing, knowledge, or research?
8. How do you see this course impacting the campus?
9. Based on your experience, what advice would you give to other teachers?
10. What do you think is the most valuable thing about the Eco-Rep program?
11. How does your work with the Eco-Rep program compare to other work you do as a faculty member?

12. I will also ask a couple of specific questions about course pedagogy and outreach based on my observations during the semester.

My interview questions for the faculty advisor are similar to my questions for the program manager, with some added clarification about the relationship between the faculty advisor role and other aspects of the faculty position. The similarities between my questions asked at each level of the program (what is seen as valuable in the program, how the work of the program relates to academic writing and knowledge) were helpful in allowing me to collect data that functions as self-reported evaluations of the program and, further, these questions helped me get a sense of how the administrative, teaching, and outreach roles of each participant level foster differences in terms of what is valued and why.

Methodology for Research Question #4

Do the students and facilitators perceive a change in their role as they participate in the program? Interviewing students and facilitators at different points in their participation within the program helped me make these comparisons, drawing on Thomas N. Huckin's procedural steps for identifying patterns and features across a corpus of writing. I borrowed from critical discourse analysis (Fairclough) to help me examine the relationship between students' writing, their language use, and the classroom and social contexts that these texts occur in, however I am less formally concerned with looking for aspects of power dynamics. I was interested in how student language use may change across the interviews and outreach projects. Noticing changes across the students' experiences in the Eco-Rep program helped me get at a better understanding of the relationship between academic knowledge and outreach work. As such, I compared

language use in class visits and interviews with the kinds of language and rhetorical choices students make in their outreach, as well as differences between these sources and their interviews. Examining language use after the students have engaged in outreach activity helped me determine if their views on the relationship between coursework and outreach change during the course of their work. Of course, my observations of the outreach activities themselves helped me notice aspects of the classroom that transition to outreach, and aspects that don't. The interview questions for my student Eco-Rep participants that directly reflect this research question were:

1. How has being an Eco-Rep impacted you the most? Has it changed your writing or thought processes?
2. What do you think was the most important thing you've done as an Eco-Rep?
3. What was something you've done as an Eco-Rep that had positive feedback? What about feedback that you weren't expecting? Why?
4. What kind of writing did you do as an Eco-Rep (in the course)? How did you see that writing connected to the other aspects of the role? How do you see that writing connected to writing you do in other classes?
5. What do you see as the connection between the content knowledge of your discipline and the work you do as an Eco-Rep? How do you use scientific knowledge in your work as an Eco-Rep? How does your audience respond to that knowledge?
6. What is your role as a student in the Eco-Rep course? Is it different from your role in other courses?
7. What do you think is the most valuable thing about the Eco-Rep program?

8. What are your plans for the future? How do you see those plans connected to your work as an Eco-Rep?
9. I will also ask a couple of specific questions based on my observation of their activity and specific texts they've shared with me.

These questions allowed me to examine how the students feel about their audiences' responses to their outreach activities, with special attention to how that audience reception may or may not affect what they see as being important in their work. To help me determine this, while coding both my interview transcripts and the texts themselves, I looked for one or more of Andrea Lunsford and Lisa Ede's audience roles being addressed or possibly invoked (155-157). I also looked for moments of Ken Hyland's forms of engagement, with special attention placed on reader pronouns, personal asides, appeals to shared knowledge, directives, and questions. This methodology of language use analysis also informed my close readings of some of the course texts in Chapter 2.

Project Overview and Chapter Outline

As will become clearer throughout my project, one of my main findings as to what makes the Eco-Rep Program interesting is the way that it is layered. As such, the structure of my research reflects this by tracing each layer of program participation. As I suggested at this chapter's outset, research on public intellectualism tends to privilege faculty and expertise, so I'm going to begin by looking there so that I may lead to what I think is the real innovation of the program: students doing outreach from the beginning of their careers in science.

In Chapter 2, "Structured Knowledges: From Hard Science to Public Outreach," I begin my data analysis by focusing on my interviews with the Program Manager and Faculty Advisor; beginning my discussion of the program by starting with the two administrative roles that

provide the philosophical orientation for the facilitators and students. In this chapter, I also go into more detail on how the program is structured, and perform a rhetorical analysis of a few course readings to help me contextualize the program within its own disciplinary contexts.

In Chapter 3, "Preparing Public Intellectuals: Teacher Engagement and Contextualized Learning," I continue my data analysis and discussion by looking at the course facilitators, focusing explicitly on their pedagogical decisions in the classroom and how they use and value the different components of the course, with a special focus on the facilitators' use of writing.

In Chapter 4, "Sustainability and Student Scientist-Activists," my data analysis culminates with my student case study participants, focusing explicitly on their reflections and their outreach work. In many ways, this is the key chapter of my project. Getting to a point where I can do justice to my data (the students and their work) requires the scaffolding work to make the context of the program clear to my readers.

This project concludes with Chapter 5, "Public Intellectualism in the Sciences and The Humanities: A Shared Concern," which provides theoretical and pedagogical takeaways and suggestions for future research. In Chapter 5, I also zoom back on my data collection process and methodology to provide suggestions for improving this project's methodology.

Like my data analysis, organizing this project was very much a recursive process. Initially, the chapter on the student case study participants led the three data analysis chapters; this made sense because, in many ways, the students and their work is the driving centripetal force behind the entire project. As a writer, however, I found myself slowly beginning to imagine this epicenter needing contextualization to make the most rhetorical sense, at the very least because I kept imagining a reader asking repeatedly some variation of, "well, where is this all coming from?" I could easily imagine, of course, the opposite happening, and so I encourage

hypothetical and actual readers both to imagine each chapter as helping to contextualize the others.

If questions regarding scaffolding or contextualization arise while reading, I would also encourage readers to adopt their own recursive reading processes and move forward with this author's explicit blessing to turn to another section if you realize you need some specific piece of program description to help you read; this would certainly reflect my own writing process (and I believe this project holds up at least to some degree to a nonlinear read). I hope this interconnectedness speaks to some of my later claims about what makes this kind of program interesting, both as a researcher and as a student of what it means to work in a world that reflects Tinberg's notion of messy and embodied publics within our classrooms.

CHAPTER 2

STRUCTURED KNOWLEDGES:

FROM HARD SCIENCE TO PUBLIC OUTREACH

Introduction

In this chapter, I begin my examination of the Eco-Rep Program with the two highest administrative levels of the program: the undergraduate Program Manager and the Faculty Advisor. Drawing on interviews with each of these positions, as well as lesson plans, class observations, and textual analysis of assigned course readings, I discuss how the administrative orientation of the program fosters the kind of learning environment that encourages student outreach. Lastly, I draw connections to the broader undergraduate experience, including implications for participation within academic discourse and connections between academic and publics in curriculum development.

As such, this chapter addresses my research questions "how does knowledge circulate in the program, both in the classroom aspect and in the student outreach projects?" and "how do the course facilitators and administrators negotiate the disciplinary knowledge of the program with the needs of outreach work?" I am curious about the relationship between the students' perspectives on the program and the administrators', so these questions are designed to give me a sense of these perspectives and how they impact the collaboratively-developed pedagogy of the program. My curiosity in these questions is determining what the program manager views as being important about the program and the relationship between classroom and outreach, especially compared to what values and perspectives the student Eco-Reps expressed. In this chapter I also build the program's definition of sustainability and establish its context within the

larger discipline of Environmental Science. As such, my approach here is also grounded in disciplinarity, as this chapter explains how the Eco-Rep Program's sustainability-as-discourse is contextualized within the larger discipline of Environmental Science, which provides a foundation for my next two chapters.

The two main ways I will establish these backgrounds in this chapter is by first discussing my interviews with the Program Manager and Faculty Advisor. I will draw from Dyson and Genishi's process of "constructing assertions" (84-86) in case study methodology to pull thematic patterns out of my interview transcripts to show how these two case study participants use academic knowledge and sustainability to develop their approach to administering the program. Secondly, I will use their definitions of academic knowledge and sustainability to perform a trace reading of one unit sequence's readings from the Faculty Advisor, to the Program Manager, to the facilitators, and finally to the Eco-Reps.

Through gathering and coding my data, I will gesture towards places where I believe I may construct grounded theory from my research. Migliaccio and Melzer write that building grounded theory is useful for examining how "faculty are evaluating student writing" (80). As I suggest in Chapter 1, the criteria of grounded theory (Glaser) helped me transition from my coding process to establishing more formative suggestions. I have used a grounded theory methodology in this chapter by adapting data coding schemes I originally used to examine my data from Chapter 4 to expand on the student emotional responses I discussed there and to shift my focus more towards strictly-observable academic knowledge.

Faculty Influence: Pedagogy and Philosophy Behind the Scenes

Craig, the Faculty Advisor, is a faculty member in the Environmental Science department and has been the Faculty Advisor for the Eco-Rep Program since 2011. I interviewed him once for two hours, observed him in his role as the Faculty Advisor at the Eco-Rep staff meeting and Spring Potluck, and we exchanged two e-mails where he answered my inquiries. Craig's role as the Faculty Advisor is to oversee the entirety of the program, which involves: hiring new Course Facilitators and Program Managers, leading teacher training for the Facilitators; helping the Facilitators come up with lesson plans and providing reading material suggestions; coordinating what students' outreach requirements will look like for each semester; helping the Facilitators grade, and serving as a general ombudsperson for the program. Further, Craig is the official liaison and overseer of the program for the Environmental Science department.

As an academic, Craig's interests are interdisciplinary and collaborative. He writes

> I study the sustainability of ecological-social systems, addressing questions of how ecosystems change through time and how people interact with natural resources. After working on Arctic system science for 15 years, I now work primarily in two domains: sustainable urban systems (Boston), and water resource management (New England and Africa). In both cases I collaborate with teams of scientists and stakeholders to develop holistic understandings of complex system dynamics. (Craig Interview 5/12/15)

Outside of overseeing ENVIRSCI 297F, Craig also teaches ECO 697PS: Perspectives on Sustainability, one of the core required courses for the Masters of Science in Sustainability Science, a degree that he helped found at UMass.

One exemplary moment at the Eco-Rep Potluck I observed showcased Craig's role as a mentor and advisor of the entirety of the program. When my case study participant Laura stood up to give her presentation about her semesters' outreach work, she shared her experience organizing a recycling trivia night in a residence hall. Laura expressed disappointment at having a very low residence turnout to her event, remarking that she had a fairly decent turnout but all of her audience members were Resident Assistants. After Laura shared her experience, Craig stood up to comment on her presentation, remarking that "you should feel accomplished in your work. By reaching an audience of RAs, you informed the people whose job it is to inform the residents. You informed the audience who can disseminate your message to an even wider audience" (Eco-Rep Potluck, 5/5/15). This moment shows how Craig's influence as a faculty member affects the pedagogy and practices of the Eco-Rep Program. In our interview, I asked Craig about this particular moment, and he replied that he made a point to frame his role during his introduction at the potluck as being a "behind the scenes" figure to the students; many of whom never directly interact with Craig. In our interview, he explains that "when the students sign up my name is on SPIRE; they don't usually see my name but then suddenly at the potluck there's this faculty person" (Craig Interview 5/12/15).

In describing his role to me, Craig explains that

> When the dean asked me to do it he said, students are grading students, so make sure it's being done fairly, and *make sure the curriculum is rigorous and it's a real academic course*. So that's what I mean by quality control… I work every summer with the incoming program manager to establish the basic framework for how we set up the curriculum… My role is to work with those individuals who do the curriculum

> development. It's usually the first time they've ever been responsible for designing a course, writing out a syllabus themselves… *There's quite a lot of scaffolding*, so my role is as they come up with readings, giving them a two-page journalistic article that you found on the web is not a very high level academic source to give people who are already thinking about this, and *so let's include at least one reading that's a higher quality*… the most obvious simple curriculum oversight I can provide is helping them select the materials they're going to do; guiding them through that process. In my experience it usually means on at least half of what they come up with, *raising the bar for what they consider a source for good discussion.* (Craig Interview 5/12/15, my emphasis added)

From my discussion with him, it's clear to me that Craig values the perspectives of the undergraduate course facilitators that he works with while, at the same time, believing that they ought not to be without oversight, especially with regards to maintaining the kind of academic rigor that a faculty person can provide. Specifically, for Craig, what this sense of being a "real academic course" requires is not losing the traditional hard, researched and published science of the field, even when students are primarily being taught to engage in lay outreach.

In the spring 2015 semester, the Eco-Rep Program has one Program Manager, Kevin, who is a former Eco-Rep Course Facilitator and senior Environmental Science major. After graduating, he will be attending graduate school in Environmental Science, a process that he attributes directly to his involvement with the Eco-Rep Program[1]. I interviewed Kevin twice during the spring semester: once at the beginning before the start of classes, and once directly

[1] While not part of the purview of my study, it is interesting to note that in the next Academic Year after my data collection, the Eco-Rep Program has two co-Program Managers. They are my case study participants Paul and Sarah, former Course Facilitators.

after the semester ended. I also observed him in his role as the Program Manager in two Eco-Rep staff meetings and the end-of-semester potluck. We exchanged four e-mails where he answered inquiries I had about the pedagogy of the course.

Kevin's largest day-to-day role involves leading the weekly lesson planning meetings with the other Course Facilitators, where he facilitates their discussions regarding how that week's unit is going, and planning what to do in the coming weeks in order to meet the unit goals. He meets more regularly with Craig than the facilitators do (multiple times per semester versus once per semester) and sees himself as the mediator between Craig's philosophical goals for the program and the facilitators' carrying-out of those goals in their classes. Kevin views his role as being the primary ongoing negotiator of disciplinary problems that new teachers might face; anticipating pedagogical issues that may arise in the program and working with facilitators to come up with concrete practices. Kevin explains, for example, that "for the educational material, there's a disconnect between these high-concept issues like why students might not want to recycle without grounding it or coming up with concrete decisions about what can be done. So that's something we're trying to work on more" (Program Manager Interview #1). One key difference between Craig's role as the faculty advisor and Kevin's as the program manager is the emphasis on pedagogy and teacher training as opposed to large oversight and philosophical orientation.

As the purpose of this chapter's examination is the presence of academic knowledge, it can be considered the other side of the emotional, affective examination I discussed in Chapter 4 regarding the students' experiences. As such, I used an initial coding scheme of my interview transcripts to look for places where the program manager and faculty advisor were discussing

academic knowledge and where they discussed or defined sustainability. I arrived at this distinction after a few rounds of coding my data (initially, I treated sustainability and academic knowledge as one code), when I realized that neither Craig nor Kevin were discussing sustainability as something synonymous with academic knowledge itself.

Craig's conception of academic knowledge is in some ways quite traditional, in that it relies on peer-reviewed scientific inquiry and traditional publishing practices (as you would expect from a tenured faculty member at a large research university) and interdisciplinary and holistic, as his conception of what academic knowledge does is dependent on how it relates to what it is not. Without suggesting causation, I do believe there is a significant relationship between the work that Craig does (either as an established member of an interdisciplinary field or as the advisor for an outreach-oriented program) and the way he defines academic knowledge here. Further, much of my discussion with Craig revolved around what he called the "spectrum" of knowledge that ranges from hard academic publishing on one end to journalistic genres such as news media and the blogosphere. In our interview, Craig discusses the role of traditional academic knowledge in the program, explaining that he

> would like students to come away with some appreciation for the *difference* between a blog post they find on climate change… and a peer reviewed journal about sea level rise. I want the students to recognize that there are *differences in the kinds of information* that you get in those two things… Facilitators will come to me with a suggestion for a reading on local foods, for example. I'll read through it and if they've basically come across something that's closer on the end of a blog post than it is to an academic-type assessment... Let's put those two things at the *two ends of the continuum*. I want students

> to know that there is a continuum and to be able to roughly position things along that continuum… They haven't yet developed the full set of *information literacy skills,* even as facilitators, to judge which is the more appropriate one… Part of my job is to get the students to move to the right on this curriculum, this literacy continuum, so they're at least over the course of the semester getting exposed to a range of different things. I don't want them to move all the way to that end of the continuum. I want the students to recognize the range and to be able to peg things on that range. (Craig Interview 5/12/15, my emphasis added)

According to Craig, one of his goals as the faculty advisor for the program is to foster in students an increased awareness of information literacy, which he defines as the ability to place texts along that knowledge spectrum and, by doing so, develop heuristics for assessing different kinds of information.

> One of the things I've tried to do over the years in subtle ways is embed my teaching philosophy into what they're doing. My teaching philosophy involves a lot of group discussion and dialogue. My favorite teaching setting involves a small group discussion. In my environmental problem-solving capstone IE course, it's the only point where the major curriculum intersects with the gen-ed curriculum outside of JYW. One of my learning outcomes is to give them a metacognitive set of skills to use on environmental problems in class. If I'm successful in doing this, when they get out into the world, four or five years down the line will still be using the same heuristics they've developed for how you solve problems. (Craig Interview 5/12/15)

Craig's notion of what sustainability itself is represents a further continuation of his definitions of academic knowledge, with perhaps even another step in the direction of recognizing it as an inherently interdisciplinary necessity that relies on how it connects the academic with the popularized. Craig explains that, during his tenure as Faculty Advisor,

> We realized that Eco-Rep had a very individualistic approach. It wasn't helping students to see the deeper structures in society that lead to unsustainability. We were focusing very much on the individual level, your own choices and your own personal sharing. So in the last few semesters we've been trying to help students think about themselves as agents of change. The program is in this evolving state, we're always revising the curriculum and re-explain things because we're always passing over the baton to the next generation. (Craig Interview 5/12/15)

Here, Craig's claim about the program formerly being too "individualistic" may seem to contradict my later emphasis on the pedagogy of the program being effective in part for its emphasis on students' individual experiences. However, I would instead emphasize that what Craig (and the facilitators) are pushing against is the notion of the egotistical, independent and solitary environmental activist who is, as facilitator Holly would say, "self-important and enlightened" (Holly Interview 4/27/15). As Craig puts it "agents of change" is still a position that relies on individual experiences, and yet it is also a position that emphasizes interdependence and growth over enlightened stagnation. This may be, however, something the pedagogy of the program and outreach in the sciences has yet to fully reconcile. As I discuss elsewhere in Chapters 1 and 3, the field of Sustainability Studies does lend itself to outreach and activist work. What is yet to be refined, however, is the way the field conceives of the relationship between

academic and popular. This is, at least partially, because the disciplinary content knowledge of sustainability has such clear stakes in the public and political participation within the message of sustainability awareness.

According to Kevin,

> Because Sustainability is an emerging field, there's constantly new information coming out. If I were program manager again, I'd look for things pulling from the Paris Climate Summit, for example. I don't think students keep up with the newer things even if they already have an interest. So I feel like my role is to help students stay current and to know the science behind this news… A lot of people aren't aware that mountaintop removal or fracking is even going on, again, even if people already have an interest in sustainability. (Kevin Interview 6/15/15)

For Kevin, as an even newer initiate (having now had three semesters' experience teaching and two as the Program Manager and, at the time of my study, being accepted to the graduate program) to the discipline, sustainability is defined even closer to the popularized, emergent conception, reliant on what people do *with* knowledge. Furthermore, both Kevin and Craig are aware that the relative youth of the field means that the disciplinary canon and relevant knowledge for new students to have is constantly changing.

In summation, both Craig and Kevin view the composition of academic knowledge as functioning on a continuum: for Craig, the distinction moves along a spectrum of information literacy skills between popularized knowledge and hard academic knowledge, with each having different conventions and purposes. For Kevin, perhaps as is appropriate in his role as a slightly

newer initiate to a role of disciplinary expertise, this continuum exists instead between lived experience and academic knowledge; again, with each having different purposes in the classroom and in outreach contexts.

Finally, it is important to note how both Craig and Kevin define the importance of reading and writing in relationship to the kind of pedagogy they value. I will go into more explicit detail on how reading and writing shape the students' experiences in the classroom in the next chapter, but it provides an important discussion here for how both Craig and Kevin define their philosophical and pedagogical frameworks they use to approach the class as a whole. Kevin explains that

> What you read in the class and you have dialogue about in the class will influence what you do in your outreach, which influences their writing assignments. Part of why we have them do papers, even if they're not the most exciting assignments in the world, I think it's important to simply write down how I'm feeling about certain topics as an act of summarizing to help learn your own personal feeling on a topic in order to consider more perspectives. The process of writing is helpful. (Kevin Interview 6/15/15)

Kevin's conception of the value of reading and writing here do not seem strange to those within Composition and Rhetoric, who talk frequently about the value of writing as a process that allows a thinker to better determine their own thoughts on complex and personal issues. Craig expresses similar sentiments when he explains that

> people often have this experience where they have to write something to clarify what they think about it. This is the role of the reflective writing as well. And doing the outreach

> helps us train them talk to other people about this in terms of what they can understand. So whether that knowledge is coming from the purely academic end of the continuum or not, to translate it to people who don't have the same background or goal. The other thing for us is that the act of teaching, and this reflective writing, is part of the learning that students get (Craig Interview 5/12/15).

What I learn from these definitions of writing within the program is that both Craig and Kevin view reading and writing as being important for different reasons in the program. Reading is important to help students gain disciplinary knowledge and maintain Craig's notion of "hard science" legitimacy, but also and perhaps more so to help them reflect on how to craft their outreach projects. The administrators both view writing at its most important when it is reflective (not evaluative), as that is the most effective way for students to engage with their own individual relationships to disciplinary content knowledge.

In the next section, I will consider ways in which the administrators' philosophical and pedagogical understandings are reflected in the choices made in the lesson plans and curriculum development. Taking what I've learned from this section about how Craig and Kevin think of themselves as academics and as administrators, as well as what they believe is valuable about the program, I will engage in a specific process of tracing one lesson plan sequence throughout the course to show how these orientations are reflected in course design.

Lesson Plan Tracing: Food Production

Having used my interview transcript coding to develop a sense of the philosophical and pedagogical underpinnings from the Faculty Advisor and Program Manager, in this section I

conduct a systematic trace of one semester's sequenced units; specifically, I'm going to draw from discourse analysis to help me analyze how the theme of food production is viewed and planned at each level of the Program. By doing so, I show how the pedagogical and philosophical goals expressed by Craig translate to specific practices and choices made by the Program Manager and Course Facilitators, and how these goals are finally seen in the student writing and outreach. This kind of traced analysis follows Jane Fahnestock in asking

> what happens to scientific information in the course of its adaptation to various noninitiated audiences? What, if any, changes does it undergo as it travels from one rhetorical situation to another? And how, in turn, is the discourse containing such information transformed? (276)

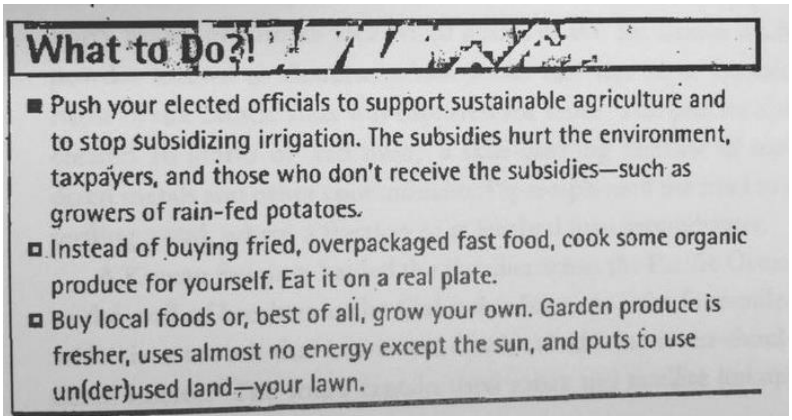
My analysis here differs from Fahnestock's tracing of scientists performing science; instead, I am looking at students learning science for the sake of teaching science. In that sense, the Eco-Reps are not, as Fahnestock claims regarding traditional science students "learn[ing] to write like specialists for specialists" (293). Like Fahnestock's, however, this kind of traced reading, proceeds under the supposition that students will gain different expertise depending on the explicit audiences they learn to write for. Further, What I find interesting about performing this kind of a traced reading is seeing how goals are translated across levels, and examining specific instances of how goals change when translated by students to suit their own purposes in outreach.

The lesson plans and unit sequence of ENVIRSCI297F revolve around the "three pillars of sustainability" first proposed at the 2005 World Summit on Social Development. These three pillars are environment, equity, and economy, and are used to structure the three main units of

the course and to provide a framework for students to think of sustainability in interdisciplinary ways. The unit on food production in ENVIRSCI297F is one of the focuses in the first course sequence, within the "environment" component of the three pillars. Included in each sequence is a behavioral change component, where students are required to propose some way they can individually change their behavior and participate in reflective writing throughout the unit on their progress.

In the unit on food production, Craig met with the facilitators and read their suggested readings, which revolved around selections from the book *Stuff: The Secret Lives of Everyday Things* by Alan Thein Durning and John C. Ryan. Specifically, the facilitators were planning on assigning the sections on hamburgers, French fries, and soda. In each of these sections, the authors track each individual ingredient from, for example, the "six square feet of former prairie in Nebraska" where grain is harvested to the "cheese from dairy herds on the Oregon coast" (55-56), as well as outlining what is wasted at each step of the production.

The book also makes frequent use of inter-textual visuals such as tables and highly-stylized drawings to direct the reader to certain concepts. In the table below, the readers are advised on "What to Do?" partway through a section on the lengthy process that potatoes go through to become French fries, including freezing, packaging, and transporting:



What to Do?!

- Push your elected officials to support sustainable agriculture and to stop subsidizing irrigation. The subsidies hurt the environment, taxpayers, and those who don't receive the subsidies—such as growers of rain-fed potatoes.
- Instead of buying fried, overpackaged fast food, cook some organic produce for yourself. Eat it on a real plate.
- Buy local foods or, best of all, grow your own. Garden produce is fresher, uses almost no energy except the sun, and puts to use un(der)used land—your lawn.

Figure 2.1: "What to Do?!"

As I will discuss later, this and similar visuals within the text are evocative of the kinds of outreach material that the students produce in the program.

What's missing in *Stuff*, however, are many traditionally-academic textual conventions. The book, which is written for a popular and mostly uninformed audience, lends itself well to being easily excerpted and read quickly for its sensationalist questions and quick selections. There are few citations, and the narrative follows the authors' thought processes through consuming food: "I ordered French fries with my burger. Not the healthiest lunch, I admit-- lots of grease and salt. But it's what I was raised on, and like I said, I was in a rush" (58). This movement between the self-reflective and larger structural or societal issues is an important one for the Eco-Reps to learn (as stated in the syllabus and consistently by the facilitators), and so this reading models the reflective writing assignments that the students are asked to do in preparation for and conversation with their outreach work. What *Stuff* provides for the students of the Eco-Rep program is a survey-level awareness of some of the large systemic (and symptomatic) issues facing those engaged in the work of sustainability and a way to begin translating those systemic issues down to the level of the individual.

During the lesson planning meeting, Craig asked the facilitators to include a peer-reviewed journal article, "Does Local Production Improve Environmental and Health Outcomes?" By Steve Sexton, from the journal *Agricultural and Resource Economics Update* published by the University of California. According to Craig, the presence of traditional academic readings in a course designed for outreach is important because it "helps students know the hard science behind the work they're doing on campus" (Craig Interview 5/12/15). It also helps ground the work in the "language of science" which, according to Craig, creates a meaningful relationship between the academic knowledge of the field and the outreach work done by the students. In the introductory section of his article, Sexton writes:

> It has become almost conventional wisdom that the federal government's farm program has created a food production and marketing system that poorly serves societal interests and that new policy is needed to return to our agricultural roots. Economic theory and empirical evidence suggest, however, that… a food system based on local production would improve outcomes in the key areas its proponents assert the current system lets us down: human health and environmental preservation (5).

Sexton spends most of his article talking back to some of the seemingly-bold assertions made by "locavores" who advocate a local production-based food system, including popular figures like author Michael Pollan and chef Alice Waters. Sexton unpacks the arguments that people like Pollan and Waters make, using a combination of rhetorical analysis and scientific inquiry to examine implicit assumptions in their arguments. For example, Sexton writes that "implicit in the locavore assertion that local farming is environmentally friendly relative to industrial agriculture is an assumption that altering the scale and location of agricultural production does

not alter its efficacy" (7). By doing so, Sexton examines some problems with the locavore argument, specifically by examining data of food production and economies of scale required by the mass consumption necessitated by the immense population growth since our society last relied on local food production. Ultimately, Sexton argues for a renewed "commitment to crop science" (8) to develop increasingly-sustainable food production methods, and not instead relying on assertions that local food production would necessarily solve many of the systemic problems created by overreliance on modern agriculture.

As a pedagogical text, Sexton's article makes a few meaningful additions to the conversation started by *Stuff*. Dissecting assumptions made by popular locavore arguments helps disrupt students' possible expectations that sustainability has already determined its methods of success, and makes them better prepared to talk about the stakes of sustainability to outside audiences. In sharp contrast to *Stuff*'s simple, clearly-delineated "What to Do?" offerings, Sexton's decidedly more scientific approach concluding with a vague, if clear, call for a renewed commitment to crop science leaves the reader with a sense of urgency and makes it clear that the disciplinary and societal work of sustainability remains yet to be done. By critiquing the popular locavore arguments, Sexton also reminds his readers that scientific inquiry is exactly that: inquiry, or rather an epistemology that can be constantly used and re-used. This shows new students that the language of science (to borrow Craig's phrasing) has, at the time of their entry into the discipline, not become something with already perfectly-defined uses and conclusions. Lastly, as a more traditional academic text, the author is explicitly absent from the text in a way that is far removed from the ongoing reflective/scientific movements made by Durning and Ryan in *Stuff*. What these sources in conversation with one another show students is that the language

of science--specifically within the sub-discipline of sustainability-- is itself contextually-deployed depending on a text's genre and purpose.

Kevin also included an excerpt from *Future Trends: How to Live Sustainably,* a publication of student writing done from a seminar at Vanderbilt University on sustainability. In his selection from *Future Trends*, written by Emily Kurtz, Kevin chose a source that straddles the academic and the popular: the selection is written in an informal, conversational style but incorporates a large number of academic citations and draws from peer-reviewed research to make the argument for using local sources. Kurtz writes that "our current agricultural system is not sustainable because there is no way we will be able to meet the needs of both present and future generations. Therefore, to promote sustainability, we need to return to a more holistic approach to food" (14). As an additional author in pedagogical conversation with Sexton and Durning and Ryan, Kurtz brings together some unresolved threads left by the other two readings. Kurtz combines a tonally-academic piece with the conversational nature of a reflective piece of writing; the author is textually present largely in the form of shared "our" or "we" pronouns that typically stand for "Western society," and assertions are backed up with specific data citations. Kurtz is the only author in the formal unit that makes extensive use of plural personal pronouns to create a sense of disciplinary community and make connections between her and her readers. Kurtz's text also most closely models the kind of reflective writing the students themselves will produce in the class.

In Holly's section of the class, she used these readings in combination with Ron Finley's TED Talk "Guerilla Gardening" with the behavioral change unit requirement to ask students to

change some aspect of their food consumption to become more sustainable. In his talk, Finley describes beginning a communal garden in the troubled neighborhood of South Central LA:

> We gotta make this sexy. I want us all to become ecolutionary renegades, gangstas, gangsta gardeners. We gotta flip the script on what a gangsta is. If you ain't a gardener, you ain't gangsta. Get gangsta with your shovel, okay? And let that be your weapon of choice.

Finley's persuasive style is quite far removed from the more purely-informative of Sexton's article. The talk is directly conversational, in the sense that Finley assumes a shared "we" rapport with his audience, and shares with them his personal reflection on larger ideas through his community experiences. Finley uses very little examples of what would qualify as scientific evidence by most definitions; his talk is largely anecdotal despite concluding with some very specific imperative directions for his audience.

Figure 2.2: "Guerrilla Gardening"

"It's my gospel: grow your own food. Growing your own food is like printing money." Rhetorically, Holly's addition of the TED talk gives the sequence a sense of immediacy, fostered by Finley's imperative-driven talk, that revolves around the extreme importance of individual participation to make any sustainability movement successful. Finley says "I'm not talking about no free shit, because free is not sustainable. The funny thing about sustainability, you have to sustain it. What I'm talking about is putting people to work." In her interview with me, Holly claimed that this choice was meant to translate the academic information into something "tangible, immediate, and relatable" (Holly Interview 4/27/15) to her students.

As such, these four sources work in conversation to show some interesting shifts in textual and genre convention when viewed in context of the source. Borrowing from Craig's distinction between popular sources being written for "mass consumption" (Faculty Advisor Interview) and academic sources being peer-reviewed, as well as Kevin's distinction between individualized personal experience and "sterilized, professional research" (Program Manager Interview), I looked at generic differences in each of the four sources regarding peer-review status, author credentials, and stated intended audience.

Source	Peer-Reviewed?	Author Credentials	Stated intended audience
Sexton, "Does Local Production…"	Yes	PhD candidate in the Department of Agricultural and Resource economics at UC Berkeley	"Critics of industrial agriculture" (5)
Durning and Ryan, *Stuff*	No	None stated or available	"For people who want to learn" (57)

Kurtz, *Future Trends*	No	BA student in Sustainability	None formally stated; uses "we" to refer to modern agricultural society
Finley, "Guerilla Gardening"	No	Local activist, "Gardener"	"Anyone" (Finley)

Table 2.1: Conventions in Sources

As might be expected, traditional academic signifiers of credibility are missing in the "less academic" sources. Durning and Ryan made no efforts to identify themselves as experts: indeed, they refer to themselves only as "consumers" (iv) in the prologue. Both Sexton and Durning and Ryan, interestingly, do less to formally recognize their audiences than Finley or Kurtz; Kurtz making use of the passive "we" society and Finley being very explicit that he's talking to everybody. In this sense, only the purely traditional academic source (Sexton) makes a point to carve out a formal audience niche by being direct with which crowd is being addressed by his article.

Indeed, the text of Finley's talk is far removed from the language of Sexton's article, even if the messages are similar. Finley explains the process of battling against the city to obtain a permit to plant food on a piece of city-owned land directly in front of his house that was his responsibility to maintain. Using the media coverage and a petition through Change.org, he was ultimately successful. As a text, Finley's talk serves to illustrate several important aspects of working in sustainability that Sexton's article doesn't: namely, the individual stakes and conflict often at play when someone decides to push a sustainable agenda. While Sexton's article outlines some of the disciplinary conversations and uncertainties at work in the field, Finley's talk

illustrates how simply performing sustainability may put an individual at odds with not just others within the field, but governmental and social structures.

Below, I have outlined each sources use of some of the patterns I have observed above: occurrence of personal pronouns, directives, and data. The sources are listed in order as I identify them from "most traditionally academic" to "least traditionally academic" given the genre forms I have discussed above. I define "data" here as the separate occurrence of a statistic or use of information outside of what could reasonably considered general knowledge. For my purposes, for example, when Sexton cites that "today's farms number 2.2 million and occupy an average of 414 acres," (6) I count that as two data occurrences. However, I do not count his general mentions of Michael Pollan or Morgan Spurlock as proponents of the locavore perspective as data occurrences. I defined plural pronouns as any explicit usage of "we," "our," "us," etc., and directives as any explicit suggestion of advice or imperative instructions to the audience, such as Finley's "what you gotta do is…" and Sexton's "we must renew our commitment to crop science" (8). Finally, as these sources differ in length and format, I used a random sampling of 1,000 words (and a publically-available transcript of Finley's talk from TED.com).

Source	plural pronouns	directives	data
Sexton, "Local"	6	3	42
Durning and Ryan, *Stuff*	8	4	20
Kurtz, *Future Trends*	30	6	7
Finley, "Gardening"	27	10	3

Table 2.2: Patterns in Sources

So, a few trends are of little surprise, but perhaps bear recognition: in the source chosen by the faculty advisor, which I have identified due to it being from a traditional academic source of a journal, contains the largest occurrence of data usage. As the sources chosen by the facilitators as a group, the program manager, and an individual facilitator for classroom use move further down what Craig might identify as the "spectrum" of academic to popularized, the reliance on data usage decreases. Working backwards along the same spectrum, the inverse happens with personal pronoun usage to denote a shared community, with Finley's talk having nearly the highest usage (it's also quite a bit shorter than Kurtz's excerpt from *Future Trends*) with the more traditionally-academic sources having fewer personal pronouns. Directive usage increases in the less-traditionally academic sources, which rely less on readers' abilities to interpret data and more on the author's ability to convince their audience of their desired outcome.

What's missing in the most academic source is establishing of shared communities and suggestions of change, which are both important disciplinary moves to sustainability. What's missing in the least traditionally academic sources is the opposite: community lines are defined and directives are frequent, but hard science, data, and statistics are less frequent. Kurtz and Finley, two of the lesser-traditionally academic sources, rely on a large number of direct questions posed to the audience; things like Finley's "how would you like it if you weren't allowed to grow food in your own yard?" Or Kurtz's "so, what can we actually do to make a difference?" These kinds of questions are nearly absent in Sexton's article. Furthermore, we can see an almost direct inversion in the frequency of data usage in the "more" academic source and the frequency of personal pronouns in the "less" academic source; where Sexton's article makes

heavy use of group signifiers ("locavores," "critics," "the industry), Finley and Kurtz instead stake claims *within* groups, speaking instead as "we," "our," and "they."

The amount of directives ("you must…" "we should..." "it is necessary to…") remains relatively consistent despite whether the source is using more or less data. That is, the authors don't appear compelled or dissuaded from using directives to attempt to convince their audience of certain actions, even when these directives may not be supported by the presence of hard scientific facts. As part of their experience in the Eco-Rep Program, students are tasked with both, and these readings each reflect that in their own way. We might say that as the traditionally *logos*-driven appeals made by the peer reviewed source function to both inform and persuade the intended audience of Sexton's article, the further away we get from that traditional genre, the more *logos* begins to be replaced by *pathos* and *ethos* as the relationship between the author and audience becomes more textually-present.

Culminating Knowledges: Food Production Outreach

So, what kind of text or genre do the students themselves produce? What sort of student work follows from these knowledge threads I have traced here? In this section, I will consider one direct example of student outreach work produced within this same unit sequence for the sake of seeing where moments of overlap and moments of difference exist between how the faculty advisor and how the students use the same materials. For this evaluation, these moments of difference are important because it shows how priorities are translated across administrative levels within the program. Jamie turned her experiences in this unit into the basis for one of her required out of class observations, which she decided to turn into an opportunity to take a tour of a local farm. Her "Environmental Unit Reflection" assignment explains how these various

experiences were synthesized in her outreach by the creation of two different posters in her chosen Residence Hall.

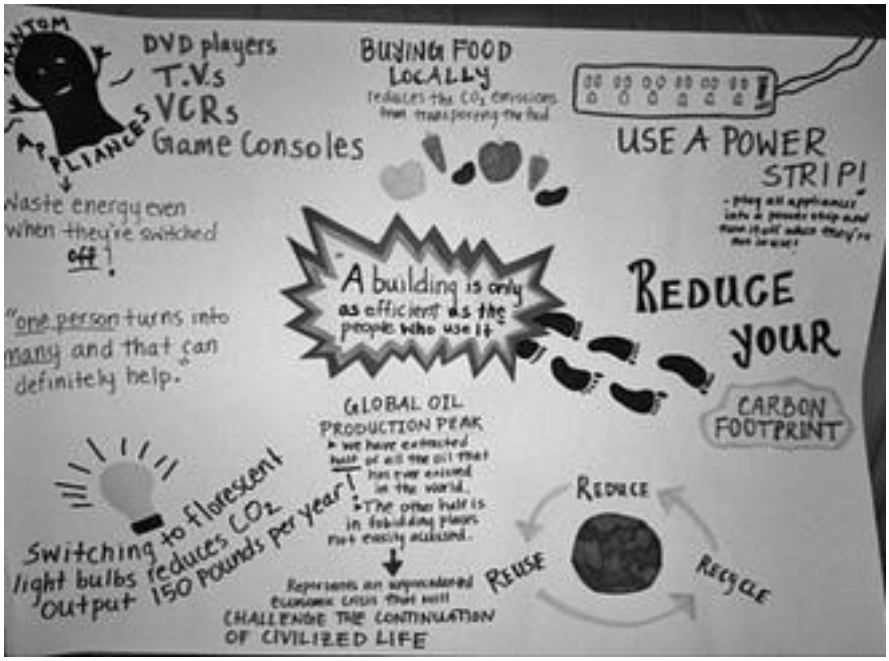


Figure 2.3: "Reduce Your Carbon Footprint"

In her reflection, Jamie writes that "after completing the tour and reading the material from this unit, I will never again underestimate how much work and energy it takes to produce even one piece of fruit." As such, her first poster made in the food production unit actually focused on the energy expenditure aspect of societal food production. The experience doing her out-of-class observation was, for Jaime, in direct conversation with her experience engaging with the reading from the class. This multilayered experience allowed for Jaime to eventually create her outreach posters that, both rhetorically and textually, draw from and differ from each of the kinds of texts that she encountered in the classroom. This first poster (above) is made up almost entirely of directives, with only three formal statistics used.

Figure 2.4: Who (or what) Grows Your Food?

Jaime's second poster does contain more text, and within that text are eight fairly well-hidden formal statistics or data pieces (including one graph on the rising costs of corn production with growing demand over the past decade). In her second poster, the visual centerpiece is the question in all capital letters "WHO (OR WHAT) GROWS YOUR FOOD?" By asking such a question, Jaime is attempting to get her audience to engage in similar moments of reflection to her own process, and yet when Jamie asks her intended audience this question, she is doing so with the background of her academic and lived experiences learning about food production. The question, then, represents an easy translation of Jamie's own self-reflection that led to her changing her understanding of food production. While her audience might only receive the final end-product of Jaime's experiences learning about the process of food production, she is able to ask this question with the confidence behind her to know both how to hypothetically answer the question, as well as what it is at stake by asking it.

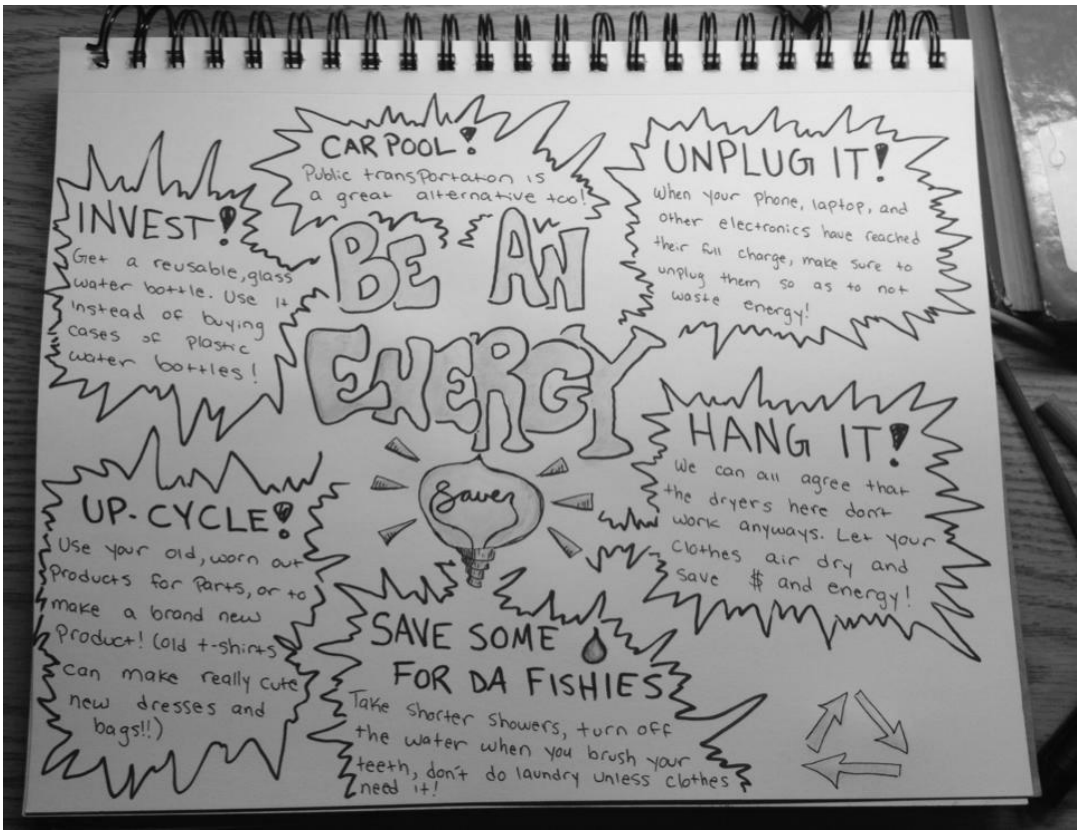


Figure 2.5: "Be An Energy Saver"

Jamie's third poster, while not related to food production in terms of content, was produced for a need that she identified in her chosen residence hall to become more energy efficient. In her reflection on her process developing this project (a reflection which became the basis for another recycling-driven poster), Jaime writes that

> by making simple changes like paying attention to what bin you are throwing your waste in, we can improve the state of the earth one smart decision at a time. Everyone shares responsibility for the present and future well-being of the human family and the entire

> Earth community. Soon, it will be too late. We just have to pay attention! ("Institutional Change Unit Reflection")

This poster is her most directive-heavy, providing her audience with a variety of methods to "Be an energy saver." Furthermore, she draws on a similar "you/our" assumed communal relationship that is evocative of both Finley and Kurtz. The poster is entirely devoid of statistics, yet reminiscent of Finley's purely-sensationalist yet communal-driven style that allows her to talk quite directly to her audience. And yet, like her previous two posters, while statistics are not explicitly used, she has drawn from data and research used in the classroom to help her make these claims in a way that is confident and informed.

This discussion gestures towards what rhetoricians already know: informing and persuading do not represent the same attendant set of textual conventions. Furthermore, it would be too simple to say that informing and persuading are too subjective or intangible to qualify; instead, by looking at prominent textual conventions present at every step of the process from faculty-chosen peer reviewed sources through anecdote-driven TED talks, we can see how persuading and informing function *differently*, through different sets of textual patterns that allow them to persuade and inform in ways that are contextually-driven. Further, each of these sources (including Jaime's) in their own way showcases an ongoing disciplinary stake of sustainability by drawing some dividing lines between groups. As a discipline, this is a bit different than how students might typically encounter a discipline's canon; these texts build the canon while also disrupting it with ongoing conflicts, questions, and uncertainties. Giving students readings that show both the breadth and depth of ongoing disciplinary conversations,

then, may be helpful in allowing them to conceive of disciplinary knowledge itself as something contextualized.

Furthermore, Jaime's use of scientific knowledge in her outreach materials shows us textual ways in which her produced texts are affected by the context of their production. If obvious, this bears repeating because it echoes Fahnestock's claim that "information changes as a function of rhetorical situation deserves scholarly scrutiny" (292), which I have sought to do here. By nature of her position and the texts she produced, Jaime is different from the "scientist-authors" (281) of Fahnestock's study. Her development as a budding scientist is happening concurrently with her development as someone who writes for a public. As such, the learning model suggested by the Eco-Rep program shows an educational context that is attempting to better negotiate the academic with the popular, and even to disrupt the necessity for a binary relationship between the two.

Discussion: Structuring Faculty Knowledge and Designing Administrative Delegation

The learning processes modeled here, especially in the context of outreach work, rely on students' translation of their reading of their instructors' goals with what they see they need to do to successfully apply this knowledge in their outreach work. As David Bartholomae suggests in "Inventing the University," we might see these "translations of priorities" not as, say, a student crudely mimicking a more advanced discourse, and instead learning how to engage in disciplinary moves by combining some degree of observing what the more advanced Course Facilitators and Program Manager are doing with their own contextualized individual learning processes. Jane Hindman writes that "conventional academic discourse works to entextualize an abstract body of knowledge and disembody the individual writer because it requires gestures

to…[the] ideologies of discipline," (100) and these moments of students' ultimate translation of the academic knowledge represents academic discourse production and participation in a way that decidedly does not disembody the individual writer, but instead relies very strongly on the individual writer being exactly that.

In his awareness of this eventual translation of academic knowledge to outreach being done by his students in their work, Craig (and to a lesser degree, Kevin) performs what I might call "faculty knowledge," which is different from academic knowledge in the purest sense. Faculty knowledge is instead the necessity of faculty in teaching roles to consider their own ways of performing knowledge translation for the sake of teaching. David L. Wallace writes that rhetorical agency is complicated because both "individual and collective" (W22) agency must be considered when examining how a discipline maintains itself. This kind of multifaceted work is evocative of Laura R. Micciche's claim that rhetorical discourse is a traditionally masculine-oriented one because of its hyper-reliance on *logos* and ignorance of other aspects of rhetorical inquiry (15).

Sustainability relies on persuasion, which rhetoricians know is a complex ongoing negotiation between author and audience that supersedes logical appeals. Michael Zerbe suggests that the domain of rhetoric is one possible way for scientists to become better equipped at recognizing and discussing the ideological problems inherent to scientific inquiry (46). Furthermore, the discourse of sustainability implicitly pushes against the notion of assumed inherent masculinity within all forms of scientific inquiry. The work of the Eco-Rep Program relies on an implicit understanding of disciplinary knowledge as interconnected, networked systems that rely on members knowing how and where to delegate and how and when to talk to

other related specialists. Such a suggestion is not for the sake of diminishing the role of specialists but thinking of disciplinary specialization as one part of the larger stage of a disciplinary practice, networked with other aspects that include delegation, communication, and outreach.

Drawing on Bereiter and Scardamalia's suggestion that writers negotiate two separate problem spaces of domain content and rhetorical process, Cheryl Geisler characterizes disciplinary expertise as contextualized with a "complex pattern of expert problem-solving… the interaction of a relatively early developing problem space of domain content and a later developing problem space of rhetorical process" (38-39). Regarding the rhetorical process, Geisler distinguishes between experts and novices in that novices

> operate with a more everyday understanding of texts as repositories of knowledge, completely explicit in their content but utterly opaque in their rhetorical construction. Experts take these same textual objects and manipulate them in more abstract ways, attending to features the novices ignore and ignoring the features to which the novices attend. (40)

While I believe we have observed here some of the process of translation between novice (Jaime) and expert (Craig) in the shift in priorities that each uses when considering a text's purpose, I also don't think this model quite accounts for the complexity of the work being done in this context. Instead, we might use the distinction between novice and expert in the way we characterize a writer's negotiation of content versus rhetoric, but not in a way that simply casts the student as the novice and the faculty person as the expert. The student is instead in a place similar to Vygotsky's zone of proximal development, where she may draw on both novice-

readings and expert-readings of texts depending on her expertise *and* her purposes. While Craig may identify the necessity of keeping the program grounded in "real academic" work and Holly may recognize the necessity of making that same knowledge more immediate and relatable, Jaime is able to draw from for her entirely different outreach purposes. As such, the ability of the student to recognize what is "important" in knowledge isn't exactly what shifts at each level, but instead the change becomes what is done with knowledges. As such, we may suggest that students are able, if given the proper scaffolding, to access and assess texts based on importance. For the Eco-Rep program, this scaffolding takes the form of relying on students' abilities to learn the knowledge-making practices of the discipline in order to *use* them for contextualized purposes.

While I have suggested at points that the field of sustainability is a bit distinct because outreach and activist work are natural and organic extensions (and even expectations) of disciplinary participation, I also think that kind of learning environment modeled by the Eco-Rep program is unique in its navigation of both classroom and outreach contexts. Geisler characterizes the novice's understanding of the rhetorical problem space as "relatively stable and underdeveloped… view[ing] texts as the totally explicit source of formal knowledge, as autonomous texts" (41). In a few different pedagogical ways, the Eco-Rep program encourages both a more developed understanding of both domain content and rhetorical space of texts. These pedagogical choices include giving students a variety of texts that showcase ongoing disciplinary problems; devoting class time to explicit discussion of bias within texts; and asking students to make *use* of texts based on problems they self-identify and audiences they have a singular relationship with outside of the classroom. Furthermore, because the pedagogy of the program is collaboratively developed, it inherently models knowledge in a way that is contextualized

depending on a user's purpose. In these ways, the Eco-Rep program is indirectly placing students in situations where they are, knowingly or not, functioning in ways that Geisler suggests are indicative of the expert's, and not the novice's, process. As such, the intricately-layered composition of this pedagogical program serves to help complicate what might otherwise be treated as binary notions of academic v. public knowledge and faculty v. student expertise. Every person involved in the program is, at some level, functioning as both student and expert, and their readings and uses of the various genres of texts used here reflect the variety of roles inhabited by both the students and the administrators of the program.

The Program Manager and Faculty Advisor, with the help of the Course Facilitators, navigate the discipline of sustainability through pedagogy by explicitly recognizing the different kind of roles they ask their students to inhabit. As such, inherent to the administrators' negotiation of the discipline with pedagogy is an explicit understanding of the public component of disciplinary participation. This awareness looks different at each administrative level; i.e., Craig choosing to focus on texts that provide more "hard science" to avoid the program leaving that behind and, conversely, Holly and Kevin's decisions to do almost the opposite by making sure that hard science is translatable to individual students' contexts.

I'm not attempting to make a broad generalization about the nature of disciplinary expertise or how students across disciplines should be taught. In fact, because of the limited and contextualized nature of this study, the patterns observed here and the suggestions I have made about them are exactly that: limited to what I have discussed here. What this discussion offers instead is a possible framework for a methodology of analyzing what changes at different generic levels in any given discipline's shift away from traditionally-academic genres towards more

popular ones in a way that does not necessitate loss, but difference. Indeed, my emphasis in discussing the different layers here has stayed grounded in rhetoric, and as such I believe that one of the benefits of rhetorical analysis is that rhetoric allows us to talk about the shared purposes of genres as opposed to their differing textual conventions. We might distinguish, for example, "faculty knowledge" from lay knowledge, in a way that doesn't assume that disciplinary knowledge is inherently grounded in one specific epistemological form. The students of the program do, instead, have a different kind of expertise through their negotiation of faculty knowledge with lay knowledge to their outside audiences.

The next two data chapters will continue to discuss different levels of participation within the program; specifically, the following chapter will focus on discussing and unpacking the course facilitators' pedagogical choices in fostering the learning goals of the program.

CHAPTER III

PREPARING PUBLIC INTELLECTUALS:

TEACHER ENGAGEMENT AND CONTEXTUALIZED LEARNING

Introduction

In this chapter, I examine the pedagogy of the sustainability-focused Eco-Rep Program by placing classroom and lesson planning observation notes into dialogue with interviews and classroom material from the course facilitators (lesson plans, reading and writing assignments, reflective writing). My main purpose of this chapter is to discuss how the lesson planning of the course facilitators seeks to combine the disciplinary academic learning practices of Environmental Science with the program's goal of students engaging in self-directed outreach and activism. How does the pedagogy of program balance academic learning with the needs and challenges of outreach work? What is the relationship between these two components?

This chapter contextualizes my discussion in Chapter 4, "Sustainability and Student Scientist-Activists," which focuses explicitly on the students and their outreach work. I also build on my administrative and disciplinary discussion that I developed in Chapter 2, "Structured Knowledges: From Hard Science to Public Outreach Through Pedagogy." While Chapter 2, however, was more about the discursive and disciplinary context of the program, this chapter takes a decidedly pedagogical examination by considering the classroom combines disciplinary knowledge of Environmental Science with outreach. Finally, my case study analysis allows me to build a heuristic for considering pedagogical techniques that instructors might use with similar goals of combining traditional academic discourse with public outreach and participation. As the focus of my previous chapter was on the discipline-specific context of the Eco-Rep Program and

how different avenues for meaning-making are used within that context, in this chapter I focus more explicitly on specific pedagogical decisions made by the facilitators, as well as the role of writing in the classroom portion of the Program.

I will first outline my data collection and methodology (see also Chapter 1 for a more extended methodology description) and discuss how this chapter's discussion will draw from my different data components. I will then turn towards two comprehensive discussions about my findings; first, pedagogical decisions that involve teacher engagement (and why this is an important possibility for teaching that seeks to combine discipline knowledge with engagement); and secondly, pedagogical decisions that foster student engagement (and why this has interdisciplinary implications for the teaching of writing). My discussions extend ongoing discussions in WAC and WID within Comp-Rhet, specifically how we balance the relationship between the teaching of writing *itself* versus the teaching of written disciplinary knowledge.

Data Collection and Methodology

Over the course of one semester, I attended two lesson-planning staff meetings; conducted eight classroom observations; eight interviews, and collected relevant pedagogical material related to the timing of my observations and interviews. This material included assigned readings, writing assignments, handouts, syllabi, and links to multimodal and digital sources. While attending staff meetings and during my course observations, I took field notes specifically on pedagogical decisions and how each instructor presented their material and taught their class[2]. Further, I collected written reflections from each instructor on their experience teaching through

[2] I did take specific notes on individual participation, but only for my student case study participants from whom I had obtained consent and IRB approval to do so.

the program. I conducted one set of interviews and observations closer to the beginning of the semester and one closer to the end. For each of my course facilitator case study participants, I conducted two interviews and two observations. As my interview questions suggest (see Chapter 1) I staggered my observations and interviews in this way to allow me to get a sense of the arc of the semester. I made audio recordings of my interviews, which I then transcribed and analyzed, using a recursive inductive coding methodology that I outline in Chapter 1. I intentionally drew from Deborah Brandt's research methodology as a process of "tracing" (557) by using my coding analysis less to create an exhaustive qualitative analysis and more to help me build my ethnographic narrative of the pedagogy of the program.

In Chapter 4, I discuss each of my student case study participants in extensive detail to show how each student navigates their various emotional affective responses and experiences with the expectations of the program. In this chapter, I discuss my data slightly more in the aggregate in an attempt to paint an ethnographic narrative of the teaching philosophies behind the Eco-Rep program. This reasoning is largely because they are a teaching cohort with a shared purpose (and I will discuss each of their different teaching practices in more detail where relevant). Of my four course facilitator case study participants, two of them (Sarah and Paul) are transitioning into the role of Eco-Rep Program Co-Managers, and my interviews with them contain some specific questions about this transition process. Each of my course facilitator participants themselves took the Eco-Rep class twice, something the program recommends doing if students are interested in becoming facilitators.

For this case study, I collected course observation notes, lesson plans, written reflections, and conducted two interviews each with four course facilitators. Paul and Sarah are both juniors

at the time of my study, both majoring in Environmental Science with second majors in Sports Management (Paul) and Psychology (Sarah). Sarah is interested in going to graduate school in Environmental Science and hopes to make her graduate work an extension of some of the questions and ideas she's developed during her time with the Eco-Rep program. Holly is a senior Education and Environmental Science major who has been teaching for the program for six semesters at the time of my study; she views her work with the Eco-Rep program as being the "most important thing" she's done with her undergrad career. Michael is the only sophomore course facilitator in my study, and he is in still in the process of deciding his major.

It is important to note here the way that I am treating the course facilitators with regard to their subject position within the university. As I discuss more thoroughly in my program description in Chapter 1, the Eco-Rep Course Facilitators are themselves advanced undergraduates who have gone through the program as students and been either encouraged or decided (often both) to apply for the job of course facilitator. While the instructor of record for each section is the faculty advisor for the program, the course facilitators are entirely in charge of grading and lesson planning. As I discuss in Chapter 4, the faculty advisor rarely attends lesson planning meetings except with the Program Manager(s) (also undergraduates, often seniors interested in graduate school in Environmental Science); weekly lesson planning, assignments, and grading are entirely the responsibility of the undergraduate course facilitator cohort. On the ENVIRSCI 297F syllabus, the faculty advisor, program manager, and course facilitators are all listed together as "instructors."

As such, I will refer to my case study participants here mostly as either "teachers" or as "course facilitators." As advanced undergraduates, the course facilitators are not brand new

initiates into the discourse community of Environmental Science; barely a few months separate them from the position of graduate Teaching Assistants. Further, I believe that it is significant that the Eco-Rep Program gives such a role to undergraduates, and a way for implicitly arguing for this significance is to treat them primarily as teachers, and then test how that role plays out in the classroom. I *will* discuss ways that being in a position at least somewhat close to "peers" as their students is important, partly because this position can be (and often is) easily recreated in graduate Teaching Assistant training and classrooms.

Another place where Composition and Rhetoric has adopted the peer learning model, and perhaps the closest that most reflects the kind of learning suggested by the Eco-Rep Program, is through Writing Centers and peer tutoring. This comparison works both in the way that facilitators function both as teachers and as peers to their students, and how the students rely on their peer-relationship to their audiences in their outreach work. This comparison is a useful way for emphasizing what I believe is valuable and effective about the work of the Eco-Rep Program, and I will discuss these connections in more detail in the following chapter.

Furthermore, as I discuss below, many of my findings about why this system works (and how it might be improved) would also be easily applicable to teacher training at upper levels, including graduate students and faculty. What is significant about these undergraduate teachers' relationship to both the disciplinary discourse of Environmental Science and the practice of teaching is how their role requires them to constantly re-engage with their own subject positions; a practice that, again, I will suggest is both valuable and easily transferable to teacher training in other contexts. The following section will also close with a brief discussion about the

significance of the built-in clear developmental pathway used by the Eco-Rep Program to encourage students to become course facilitators, and facilitators to become program managers.

Facilitating Teacher Engagement Through Pedagogical Modeling

Once a week, the eight Eco-Rep course facilitators meet together with the program manager to talk about their lesson plans for the upcoming week's class. They also use these meetings to check in with how things in class are going; this includes sharing effective lessons and activities, and discussing things that aren't going as well. As a group, they are friendly and encouraging to each other; both staff meetings I attended involved someone spontaneously bringing food and a high degree of shared inside jokes and laughter. They were eager to include me and I was impressed by the consistently high degree with which the staff as a group were able to move between light-hearted banter and serious academic discussions.

The learning outcomes for the Eco-Rep Program are structured around the systems-thinking interdisciplinary model "The Three Pillars of Sustainability," pictured below. This model is commonly used to help students of Sustainability envision what is referred to as the "complete Sustainability problem" (Sung).

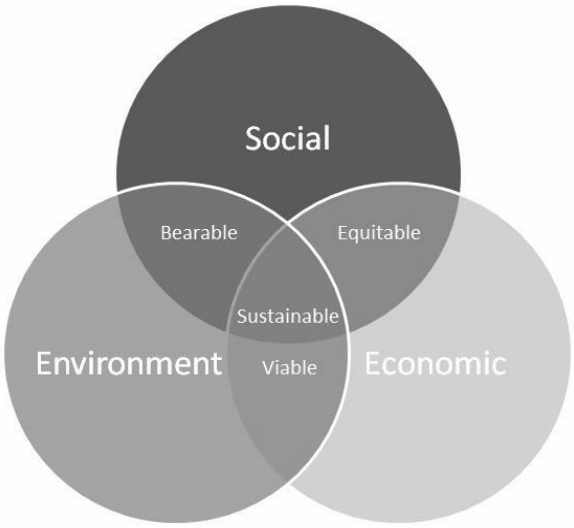


Figure 3.1: "The Three Pillars of Sustainability"

The course facilitators use this structure to sequence the course units in ENVIRSCI297f. In my sequence of observations, I observed two weeks' worth of the *Environment* unit, which revolved around the content themes of food production and mountaintop removal. The facilitators scaffold each unit which a conversation about how it relates to the Pillars of Sustainability. In his interview with me, Michael expressed that this model "really helped me understand just how interdisciplinary environmentalism is. It's not just one thing. Any time you think about issues like the climate or recycling, you have to think about all these other things behind it." During the first lesson planning meeting I attended, the above interpretation of the Three Pillars of Sustainability was projected overhead while the instructors brainstormed lesson plans for the coming unit.

Below is an excerpt of three weeks' worth of class meetings, including how each week formally falls within the Pillars of Sustainability, as well as expectations for students in both classroom and outreach work. This excerpt comes directly from the course syllabus, which is

created as a skeleton by Craig and Kevin before the semester begins, and fleshed out specifically by Kevin and the course facilitators as the semester goes on.

Unit 1 – Interaction / Action Week *Environment*	Tues. February 17th / Wed. February 18th	Students will work with the RD and RAs of their assigned building and implement their recycling programming.	Recycling updates due Sunday Feb 15th.
Unit 1 – Class 3 *Environment*	Tues. February 24th / Wed. February 25th	Students continue to hold dialogue regarding the unit topic and report on the progress of their behavioral change.	Readings and reading guide posted on Moodle. Reflection due Sunday, Mar 1st.
Unit 2 – Class 1 *Equity*	Tues. March 3rd / Wed. March 4th	Students will begin their unit 2 behavioral changes, review the readings, and begin dialogue based on the unit topic.	Readings and reading guide posted on Moodle.
Unit 2 – Class 2 *Equity*	Tues. March 10th / Wed. March 11th	Students continue to hold dialogue regarding the unit topic and report on the progress of their behavioral change.	Readings and reading guide posted on Moodle.

Figure 3.2: "Units 1 and 2 from Syllabus"

These few weeks provide a helpful glance at the arc of the course's units. At the beginning of each unit, students create a "behavioral change" statement that reflects some aspect of the thematic issue of the sequence. For example, for the "Environment" unit, students may decide to become more aware in their daily lives of how not being affected by specific crises of sustainability represents a form of privilege (Jaime) or to replace their usage of plastic cutlery with reusable (Ann). The students' behavioral changes are designed by the course facilitators to connect the material from class with their individual lives. From my interview with course facilitator Holly:

Q: Can you say more about the behavioral change reflections?

> Holly: I like them because if I want to reinforce an idea from class, like if we're discussing something really heavy, this helps get everyone fired up in a way that we can't just do by covering material. We want them to be like oh I can change this, even if it's something that's really difficult to imagine actually changing. And we develop that synergy with dialogue in the classroom. (Holly Interview 4/27/15)

Each unit begins with in-class discussions about students' behavioral changes, and progresses with additions from the course readings. Each facilitator uses different in-class activities to combine students' reflections with the readings. Course facilitator Sarah explains one of these activities that she believes successfully synthesized students' experiences with the readings:

> We'll do activities… like last class I gave them notecards with a different object written on them, like clothes or office materials, and ask them to brainstorm ways that they could recycle or reuse them. We did this in the recycling unit after reading the two articles debating to what degree recycling is actually a worthwhile thing to do...to make them think about ways they could create sustainability in their everyday lives and not just as this big abstract thing. (Sarah Interview 4/28/15)

The "reading guides" are created by the students in each section, with each week cycling through the students in each section creating the reading guides, including questions and key concepts, for their class to use. Each unit culminates in a written unit reflection that asks each student to synthesize their experience in the classroom (including reading, discussion and weekly writing) with their ongoing outreach projects. Talking about the reading guides, course facilitator Michael explains that

> The readings are often these big picture ideas that work for providing a big picture of the ideas. We have this emphasis in sustainability on breadth over depth and so a lot of the sources in the field are often about thoughts and opinions more than the science behind it. And a lot of the answers to the issues which might be seen as too subjective do require hard science knowledge. And so when we ask them to come up with the reading guides we ask them to consider the scientific and quantitative implications of the ideas they're talking about. So I actually feel like the reading guides that the students create actually make the class more traditionally academic in that way. (Michael Interview 4/5/15)

Each week, students read each other's reading guides (which are posted online) before class and the facilitators use them to help formally plan what the week's class is going to look like. In the week I observed, Michael asked his students to pair up and share reading guides with each other and, in pairs, come up with one shared question between them to pose to the group. One of the groups posed the question: "how should we think about local solutions as being different from big solutions?" and Michael made the formal connection between this question and the "Social/Equitable" aspect of the Three Pillars of Sustainability. Another group posed the question: "What can we think about in our other classes as Eco-Reps to bring sustainability there as well?", a question that my case study participant student Pat specifically compared to their experience discussing electronic waste in a Computer Science class.

The first theme that I will discuss in my data analysis is the ways in which the teacher training and lesson planning processes of the Eco-Rep Program rely heavily on specific individual engagement on the part of each of the facilitators. In this section, I will discuss staff meetings, course material, and interviews to show ways in which the teachers' meetings model

the classroom setting by encouraging individual student engagement. The takeaway for teachers and administrators of this discussion will be the possible benefits in developing teacher training and lesson planning models that allow for teachers to feel that their own individual relationship with disciplinary knowledge is a foundational part of developing their teaching. As I discuss in the next section and in Chapter 4, individual participation is a large part of the program's explicit teaching goals for the students; one significant way this goal is scaffolded is by asking the teachers to engage in similar self-reflective participation before asking their students to do so.

The teachers' meetings look similar to the actual classroom setting desired by the program. The effectiveness of this practice suggests possibilities for using teacher training as a way to model the classroom space that each discipline believes best serve their learning goals. By first reflecting on their own individual relationship to the subject material, the teachers engage in a re-negotiation with knowledge that is synonymous with effective learning outcomes (see Kuh, AACU). This experience, for the teachers, is analogous with the kind of affective and emotionally-charged learning experiences that I discuss in Chapter 4 for the students. That is, the knowledge of the discipline is constantly re-contextualized within why that knowledge matters for each individual member of the discipline. Constantly asking themselves why the knowledge of their discipline matters keeps the course facilitators concerned with how best to translate that importance to their students. Even more specifically, teachers often share with each other their ideas for weekly activities by actually *doing them* in the course facilitator meetings. These piloting experiences put the teachers in the position of their students by having to reflect on how they would respond to these activities as students. For both the facilitators and the students, imagining themselves as participants in these activities and situations helps make the abstract concept of "social change" more immediate and approachable.

One such exercise, proposed by Paul, involves each student reflecting on an important physical place in their lives and then considering ways that place may be tangibly affected by different environmental crises. While his students write their reflections, Paul plays audio clips of the sound effects of deforestation and industrial construction. In both the class I observed and the lesson planning meeting where Paul piloted this exercise, the students and the facilitators had similar emotionally-charged responses to this exercise. For the teachers, this constant re-negotiation requires them to constantly engage with *why* the material matters to them as a way of considering how to best present the material to their students. The end goal is not individualistic self-reflection, however, but using this experience to help create contexts that will be persuasive and educational for others.

In order to ground their discussion of each week's goals, the course facilitators use Benjamin Bloom's taxonomy, specifically Bloom's extended list of verbs associated with each knowledge-based cognitive domain of learning[3]. The teachers use this taxonomy to create a shared vocabulary to discuss what their lesson goals are; it also helps them to stay specific when considering what they want their students to learn and do with each concept. Below I have included the excerpt from Bloom's taxonomy that the facilitators use and reference in each of their lesson planning meetings. Like the Three Pillars of Sustainability, this diagram was projected during the lesson planning conversation. Specifically, Kevin paused at each suggestion made by the facilitators and asked them to phrase it in terms of the taxonomy.

[3] Interesting to note that these discussions do *not* include Bloom's "affective domain" of learning, which outline the role of emotion and attitudes. As I suggest in Chapter 3, the students instead create their own "affective domains" through their individualized experiences, with the course facilitators using their own affective domains as the bridge between the pedagogy of the program and the classroom.

Action Words for Bloom's Taxonomy			
Apply	**Analyze**	**Evaluate**	**Create**
solve	analyze	reframe	design
apply	compare	criticize	compose
illustrate	classify	evaluate	create
modify	contrast	order	plan
use	distinguish	appraise	combine
calculate	infer	judge	formulate
change	separate	support	invent
choose	explain	compare	hypothesize
demonstrate	select	decide	substitute
discover	categorize	discriminate	write
experiment	connect	recommend	compile
relate	differentiate	summarize	construct
show	discriminate	assess	develop
sketch	divide	choose	generalize
complete	order	convince	integrate
construct	point out	defend	modify
dramatize	prioritize	estimate	organize
interpret	subdivide	find errors	prepare
manipulate	survey	grade	produce
paint	advertise	measure	rearrange
prepare	appraise	predict	rewrite
produce	break down	rank	role-play
report	calculate	score	adapt
teach	conclude	select	anticipate
act	correlate	test	arrange
administer	criticize	argue	assemble
articulate	deduce	conclude	choose
chart	devise	consider	collaborate

Figure 3.3: "Bloom's Taxonomy"

Each lesson planning meeting begins by collaboratively developing the next week's lesson goals based around pre-determined content themes that the program manager and faculty advisor set. For example, in one lesson planning meeting I was attending, the upcoming content themes were food production and mountaintop removal. The facilitators open with an introduction to these themes (by watching a video, engaging in reflective writing, or doing a small group exercise) and then turn back to Bloom's taxonomy to decide what kinds of actions they want their students to do with the thematic material.

In many ways, this model of teacher training through engagement with the content material of the course is reflective of Vygotsky's Zone of Proximal Development. According to

Jo Mackiewicz and Isabelle Kramer Thompson, the ZPD model for learning views "interaction with teachers, tutors, and other more expert members of society, or even educational material as vital in assisting not only learning but also development and readiness for learning" (21). By being asked to break down and contextualize class themes and units for themselves as thinkers, the facilitators first reflect on their own learning process and disciplinary participation as a way of developing course material for their students, who are themselves not incredibly far behind their facilitators in their own learning development.

Furthermore, when teachers use these experiences to make different lesson planning decisions, the differences often emerge from specific moments of self-reflection on the disciplinary knowledge during lesson planning meetings. For example, while Michael enjoys using uplifting TED Talks to help contextualize more critical classroom discussions at the beginning of the semester, Holly chooses to end the class with these more positive messages as a way to counteract feelings of pessimism or cynicism that might have emerged during these conversations about difficult problems in sustainability. While this difference seems like a small one, what I want to emphasize instead is how each teacher has specific pedagogical reasons for how they structure their class time, and that these reasons emerged from Michael and Holly 's individual experiences with encountering the material during lesson planning meetings.

One example of combining collaborative pedagogy with individual exposure to the content issues of the class is shown in the way Program Manager Kevin contextualizes the unit on mountaintop removal to the facilitators. First, Kevin and the facilitators discuss how this issue relates to the three pillars of sustainability. They discuss that the issue is environmental for the harmful and unsustainable effects that mountaintop removal has on the environment; economic

because it involves large corporations taking over land for profit; and social because it directly affects often the poor residents of surrounding communities and not others. It is the social component that Kevin's unit introduction hinges on, as a touchstone for the meeting's conversation around how this issue ultimately touches on all three of the pillars of sustainability. Kevin projects a Google Earth overlay (showed below) with the geographic impact of mountaintop removal in rural Appalachia superimposed over the island of Manhattan.

Figure 3.4: "Mountaintop Removal Overlay"

Kevin explains that this image, which comes from the online resource iLoveMountains.org, shows how the rural area (in dark shading above) is often described as not being "large enough" to represent a significant environmental danger. During the meeting, Kevin quotes the authors from iLoveMountains.org, who explain that

> for most people, it's hard to understand how big 10,000 acres really is. So, we superimposed the Hobet mountaintop removal complex in Boone County, WV on 36 of the largest cities in the United States. As shown on the right, Hobet is as big as Manhattan Island in New York City. You can explore the city overlays in three ways: still images, videos, or directly in Google Earth. (Mountaintop Removal Maps and GPS Resources)

From my interview with her, Sarah explains that this was "really depressing… but it was a good resource for me to help my students not think of this as some abstract thing. It made me think about other ways to introduce concepts to them like this" (Sarah Interview 2/12/15). Kevin uses this exercise as a tool to open discussion with the facilitators about how to translate a possibly-abstract or seemingly-distant issue like mountaintop removal to the everyday lives of the facilitators and their students. When presented with this image and others in the series, the facilitators responded by sharing things they've done or plan to do in their classes: Michael explained an exercise that he cited as having been inspired by Kevin's Google Earth overlay exercise which involved asking students to calmly reflect on their "favorite natural place" and then playing sounds of deforestation and industrial takeover to reflect on how their idealized versions of nature might be harmed by these realities, and Holly shared her assignment asking students to track the food they eat for a week and then perform a tracing of how it got to their plate. By showing this exercise as a model and using it to contextualize the teachers' discussion of how this course sequence, Kevin was modeling the kind of classroom environment that he wanted to help his facilitator cohort create.

During their lesson planning meetings, the course facilitators discuss very tangible ways to introduce students to important environmental issues in ways that push against simply recognizing these issues as abstract evils or fears. As such, content issues (such as mountaintop removal) are contextualized within the larger economic situation, and discussions ensue about what the symptom of mountaintop removal has to say about the system of capital and labor that created it. Addressing sentiments that I heard repeatedly from the facilitators, Paul reflects that "ever-present is the fear of falling into one end of the 'extremist perspective of Environmental Science, by either succumbing to educated cynicism and throwing up one's hands in disgust, or by focusing too much on how important you feel because you're making a difference" (Paul Interview 2/12/15). The course facilitators are, during their meetings, often discussing how topics can be contextualized in a way that make them approachable. One activity that is suggested and several facilitators decide to use is to ask students to engage in a rhetorical analysis of an argument within Environmental Science that they *agree with*, and then find ways to sensibly argue against it. Sarah notes during one meeting that this will help students develop ways to articulate their own reasoning when faced with anti-environmentalist sentiments.

All of these practices are also high-impact learning *for the teachers,* who are themselves advanced undergraduate students placed in an authoritative role over their peers and asked to show some level of disciplinary expertise. This position is reminiscent of Bartholomae's critique of the typical disciplinary acculturation process given to undergraduates: "the written work students do is test-taking, report or summary, work that places them outside the working discourse of the academic community, where they are expected to admire and report on what we do, rather than inside that discourse" (144). The course facilitators are tasked with modeling

disciplinary expertise in a way typically reserved for graduate students. As Cheryl Geisler points out,

> Perhaps students can only draw on background knowledge if they *have* such knowledge. While such a statement looks eminently reasonable, we must recognize that it can only be made once we have *already* discounted all knowledge outside the academic framework. After all, experts are not the only ones who can make connections between specialized content and experience. (50)

The pedagogy of the Eco-Rep program allows the course facilitators (not brand new novices but also certainly not advanced experts) to quite explicitly make connections between specialized content and experience and, even further, *use those connections* to help them develop as both teachers and as students. This process of making and *using* connections to advance knowledge has precedents within rhetoric, including the classical pedagogical technique of pro-and-con argumentation. Thomas O. Sloan writes that "for a long time composition teachers simply relied on the native hues of our students' resolutions. To help them find something to say… they must be taught to debate both sides of the question. And that means first of all *finding* the question" (467). Furthermore, Sloan writes, dialectic always encompasses rhetoric, "and the student's rhetorical task is always to put the matter into debate, voicing the multiplicity of issues until…agreement—between people—is attempted" (467). Through this constant remediation of the rhetorical (here as disciplinary knowledge) and the dialectical (here, their own experience) the course facilitators are engaging in a constant embodiment of voicing multiplicities in an effort to ultimately do something with that knowledge: get their students to care. One of my case study participants, Michael, has been teaching for two semesters at the time of my study, despite

only being a sophomore at the university (the rest of my participants are either juniors or seniors). This level of student engagement and leadership in an institutional role (i.e., an officially-sanctioned academic status, rather than a leadership position in a student organization, etc.) is almost unheard of at the college level, and its possibilities as a professional development opportunity as well as intellectual development for the course facilitators ought not to be overlooked.

As I will discuss more in Chapter 4, the outreach component of the program requires a complex understanding of what counts as "success," as activism and outreach require a different set of evaluation criteria than traditional notions of retaining content knowledge. Suffice to say here that there are successes to be had by the student Eco-Reps and their course facilitators by learning from each other; rather than a "blind leading the blind" scenario as some teachers might fear. Here, I'm drawing on Erik Mazur's findings about the effectiveness of the Peer Instruction model of using in-class discussion to advance students' "conceptual mastery" of science-based content knowledge (Crouch and Mazer, 971-972). And yet, the facilitators can't quite be classified as "peers" as Mazur would call them nor, fully, as "teachers" as I have mostly referred to them throughout; their role is more complex than afforded by either. Of course, ENVIRSCI 297F does not seek to wholly educate students on the content knowledge of the discipline of Environmental Science, and my suggestions here aren't meant to imply that undergrads be tasked with attempting to figure out what disciplinary expertise looks like without guidance. Worth considering, however, are the possibilities of peer-based learning, especially with regard to knowledge transfer and public outreach.

When asked about how their experience working as course facilitators has changed her, Holly tells me that "I knew about some of the large issues like climate change, but I didn't know about how it was all connected, things like environmental justice and systems of production. My mind was blown by learning about all of these things." Each of my other participants express similar feelings of the program giving them a wider sense of the connectivity and interdisciplinary nature of Environmental Science. The word "curiosity" came up frequently with regard to how the facilitators have continued their engagement with the program; the facilitators cite the process of learning as being "continuous" and "ongoing" after teaching multiple semesters.

Below I have collected where each facilitator directs their examples of curiosity, ongoing learning, and self-change. By this, I mean to which aspect of their experience teaching for the program has struck each facilitator as impacting them both as teachers and as students of sustainability in each of these different ways. To collect this data, I pulled most directly from my interviews with each of the facilitators, as well as their own reflective writing that I collected. This inquiry reflects my coding and reading process of my data; I initially looked solely for places where the facilitators directly referenced moments of "change" from their time as an Eco-Rep to their time as a facilitator. However, during my examinations, I began to realize that they weren't simply expressing how they've changed as students or teachers, but rather how the act of teaching has, for each of them (in different ways) noted how teaching has led to explicit re-examinations of content material from the course.

	Initial curiosity	What has changed
Holly	Teaching multiple sections of Eco-Reps led to wondering how to help students "continue to care about sustainability" even if they are not going into a sustainability-related field	Engaging with reading led to knowledge of interconnected nature of sustainability
Sarah	Engaging with reading and video sources led to questions about the possibility of changing social stigmas: using sustainability to make certain norms into social negatives ("by making consumerism a negative trait, we might see more people on board with it.")	Performing outreach work led to changing her expectations for her students: from her own "shy" engagement to teaching others the importance of grassroots efforts
Paul	Creating "Game Day Challenge" activity at UMass led to ongoing questions about how to teach "responsible consumerism" to students	Reading academic sources led to personal engagement from "used to think what difference does it make" to "depressing yet motivated attitude"
Michael	How to teach the positive aspects of sustainability while still recognizing the "doom and gloom realizations" that come with being informed	Outreach work led to complicating initially "naive and simple" understanding of sustainability; i.e., "it would be a mistake to assume that renewables would allow us to continue business as usual."

Table 3.1: Curiosity and Change in Course Facilitators

What I notice from these reflections is that using self-learning as an explicit part of teacher training is an effective way to model the learning goals also set for students. Matthew Heard writes about the benefits of taking on "the responsibility of fostering [curriculum] design as an act of invention-- an act that prolongs our engaged inquiry into the values, habits, and

assumptions that we practice as students and teachers...invit[ing] new perspectives on disciplinary knowledge and new space for the ongoing revision of disciplinary values and practices" (316). Here, each of my facilitator case study participants clearly express how the act of teaching and collaboratively creating lesson plans changed their own relationship with the disciplinary knowledge they were tasked with teaching. As such, I believe that Heard's idea of "engaged inquiry" as a crucial aspect of curricular design is modeled here by the facilitators in ways that exhibit productive learning experiences for themselves.

As I have described earlier, the Program's built-in process for students to move through it as Eco-Reps and course facilitators represents another form of continual engagement for students who wish to pursue further engagement with teaching and learning sustainability. Eco-Reps who take the course multiple times become increasingly experienced teaching sustainability to their communities. This ongoing experience creates a form of mentorship that fosters, as Charles Bazerman writes, a dual experience of improving "the knowledge they have to offer [as well as] their experience mentoring their own students" (82) both for the course facilitators as they bring new members into the program and for the students who become outreach experts and eventual facilitators.

The Eco-Rep program represents an opportunity for the course facilitators, like their students, to function both inside and outside of institutional frameworks in a way that, while not (usually) directly oppositional, represents alternative possibilities for the production and circulation of academic knowledge. Through their efforts to teach their peers to become concerned with outreach, the facilitators engage in a complicated awareness of both academic knowledge production and the needs of lay audiences. For the facilitators, this role creates a

space to become actively engaged in their own learning through the challenge of translating their classroom knowledge and expertise to their students, who will then take those experiences with them to the wider campus community. The Eco-Rep program represents an example of writing as location-based, where discursive participation and authority happens through the dialogic relationship between author and audience at specific sites. As such, the following section considers how the program and the facilitators contextualize and use student writing to help accomplish the course goals.

Designing Student Engagement Through Writing

In this section, I will discuss aspects of the writing portions of ENVIRSCI 297F that are done in the name of the course objectives. This discussion will help scaffold my more in-depth analysis of student writing and outreach in the next chapter, and will also help me build on some of my more significant findings from the previous section.

In describing the program objectives, the opening lines of the ENVIRSCI 297F syllabus read:

> Our objectives are for you as Eco-Reps to enhance your own understanding of current environmental issues and how individuals have an impact on these issues. You will also learn how to best interact with your peers about environmental issues, as well as how to be an effective educator and agent of change, which is vitally important for a student with the title 'Eco-Rep'. (Eco-Rep Syllabus)

From my observations, I can pinpoint a few specific pedagogical decisions around writing that the course facilitators make for the explicit purpose of fostering student engagement.

One of the largest and most interesting of these is the way ENVIRSCI 297f uses reading and writing as means to foster individual student engagement *over* disciplinary content knowledge retention. While the pedagogy of the Eco-Rep program is not developed by those within Composition and Rhetoric, the *writing* done in the classroom portion of the course does not seem alien to those who have taught freshman composition. Vital to the class are weekly reflective writing activities, that my case study participant Michael claims are valuable because it involves "reflection on why we're doing what we're doing... it's personal. Because this writing is personal, it provides a space to reflect on how your life relates to the issues we talk about in class" (Michael Interview 3/3/15).Michael also views this kind of writing as important because it allows students to question some of the "echo-chamber" tendencies of sustainability; treating the issues not as abstract evils that affect everyone equally, but systems and symptoms that have tangible and often unequal consequences on the lived experiences of individual human beings.

Faculty Advisor Craig, referenced in the previous chapter, believes that the writing in the class is important because, according to him, "scientists, especially those engaged in outreach work, need more specific instruction in writing skills" (Craig Interview 5/12/15). This philosophical orientation from Craig is clearly translated in the day-to-day work of the class by the way the Course Facilitators and Eco-Reps view the writing as, according to Facilitator Michael "reflective work that makes us better at learning from what we're doing." As such, the teachers at every level of the Eco-Rep Program have developed an implicit understanding of the value of writing which is on par with their explicit understanding of the value of outreach work; indeed, the two are interconnected. In his addition to the course sequence, we can see clear evidence of Craig's understanding of both academic knowledges in general and the discipline of sustainability.

Each unit of the course contains two main writing components: unit responses, and outreach reflections. The unit responses are 3-5 page short essay assignments that ask students to, according to the Week 2 Unit Response assignment sheet, "synthesize what you learned in the class reading and activities with your own outreach experience to address some problem or question in sustainability that you have identified as important, challenging, or ongoing." In these unit responses, students combine material from the course readings with personal reflection. These unit responses also include discussion questions, which each section uses to facilitate student-led group discussions. The outreach reflections are more decidedly informal and reflective, asking students to give weekly updates on their outreach work and pose questions for their facilitators and consider ways to keep improving and developing their outreach agendas. At the end of the semester, students create a final reflection that narrates their outreach experience throughout the semester in conversation with the things they consider to be their biggest takeaways from the class.

Holly emphasizes the importance of how the class uses different kinds of writing activities to accomplish different goals. These include weekly reading guides and larger reflections at the end of each unit, as well as peer feedback on outreach projects. Holly explains that these different writing components help students to "reflect on what they took away from each unit, rather than if they remembered one specific aspect of it." Other writing assignments in class may involve students writing and actually submitting community or campus proposals to officials and administrators for the sake of hoping to enact change (such as implementing a compost system in an office building or upgrading to low-flow plumbing)-- some of which have a history of being passed.

Another consistent focus of the writing components of ENVIRSCI 297f is the way that teachers use writing to accomplish the pedagogical goal of breaking down abstract issues into more individualized, tangible, and immediate concerns. Teachers do this in a few different ways, the two most widely practiced by the teachers I observed are: drawing on their students' campus context, and using the occasion for public outreach as a chance to engage in constant meta-analysis of disciplinary knowledge. Students work individually with Residence Life staff across the campus to develop environmental awareness that is particular to each physical location on campus, which requires the student Eco-Reps to show different aspects of disciplinary expertise depending on what their outreach work actually looks like. This requires the course facilitators to frame many of their in-class activities around questions reminiscent of rhetorical analysis, such as: "Who is your specific audience? What are they going to need from you in order to learn? What do you know about the student population in your chosen Residence Hall?" This necessity forces students and facilitators to consistently think of their content knowledge in terms of what it can *do* for their specific purpose. In Michael's class, for example, he asked his students to spend a day and carefully record their food intake, and then perform a similar tracing of food ingredients and resource waste on the foods they consume. For Michael, this was combined with the unit's reflective writing assignment for the purpose of asking students how the knowledge they gained might best translate to messages capable of persuading outside audiences. In both of these sections, the facilitators sought to combine academic knowledge with localized and popularized sources.

The following table represents what each facilitator describes as being valuable or effective about three of the main writing assignments in ENVIRSCI297F. This material is directly derived from my interviews with each facilitator.

	Unit Response	Outreach Reflection	Final Reflection
Holly	Situates each unit within the Three Pillars and encourages understanding of intersectional "external costs...that affect everyone"	Helps reflect on the "diffusion of responsibility" that even those within sustainability let happen	Valuable for helping consider "next steps" (continuing ongoing changes, applying to be facilitators)
Sarah	Analyzing what it means to be an individual in relationship to societal structures ("what it means to be a consumer")	Reflecting on how challenging moments can lead to self-improvement	Synthesizing outreach and classroom learning to consider philosophical and societal goals ("changing the American dream")
Paul	Synthesizing connections between work done by environmental scientists and the role of concerned citizens	Turning momentary actions (recycling and upcycling) into ongoing behavioral decisions	Maturing understanding of abstract issues; balancing naive attitudes with education
Michael	Promoting understanding of interconnections between historical context and current environmental issues	Learning how to offer informed possibilities and options to an audience	Self-identifying moments of changed opinion to lead to a deeper understanding

Table 3.2: Course Facilitator Views on Writing

In this last section, I will turn now toward some broader pedagogical takeaways based on my observations of the ENVIRSCI 297f classroom. I will also suggest possible implications for Comp-Rhet scholars, with specific regard for how the class models a nuanced take on WAC/WID conversations and literacy.

Discussion

The Eco-Rep Program is innovative and interesting in terms of how it fosters student engagement on various levels between both the students and their undergraduate course facilitators. However, in this chapter I have sought to move beyond just programmatic description to suggest ways that even such a program which clearly does engagement very well might benefit from some of the ongoing conversations in Composition and Rhetoric, specifically with regard to critical pedagogy and how we conceptualize writing both across the curriculum and in the disciplines.

Are these course facilitators, as undergraduates, unprepared for the role of teaching and assessing their peers' work? From my observations, no, they are not. What programs curious about placing undergraduates in similar teaching roles might consider, however, is engaging in even more explicit discussion about disciplinary conventions and expertise before and during putting students in these roles. The Eco-Rep program addresses this concern by asking potential facilitators to take ENVIRSCI 297f twice before applying for the facilitator role; often with different instructors each semester. This gives the students at least enough of a model to engage in disciplinary expertise required of this specific context. It also prepares them to keep engaging in this level of learning, teaching and reflection that will be required of them in future contexts.

It's also important to note that the program treats the ENVIRSCI 297f classroom in a very nuanced and specific way. The Eco-Rep experience is two credits, pass or fail, and treated more as a professional development opportunity than it is a core classroom experience for students in the Environmental Science major. The class does not stand in for any core major

requirements, and is instead often sought out by students who are already interested in its program goals of outreach and communication.

How might teachers curious about contextualizing academic learning within their publics and communities learn from this program? The Eco-Rep program models, in the way the instructors and students engage with disciplinary material, a certain kind of literacy as we might define it in Comp-Rhet. Wayne Campbell Peck, Linda Flower, and Lorraine Higgins define "community literacy" as the "search for alternative discourse...support[ing] social change" (575). By encouraging individual instructors and students to foster their own individual relationships with the discourse of Environmental Science (even further, by drawing on the necessity of doing so required by successful outreach work), the Eco-Rep program engages in an advanced conceptualization of literacy that allows for difference and individuality. As such, it models a classroom-based definition of literacy that is different from many other traditional academic environments that would under Peck, Flower and Higgins' definition of "cultural literacy...by assimilating difference" (575) as a prerequisite for participation in academic knowledge production.

Further, because outreach and communication rely so heavily on personal engagement, the facilitators' role is an aptly-named one: their jobs are quite different from traditional instructors, as I have attempted to show throughout this chapter. So, while I wouldn't suggest that departments begin putting undergrads in teaching roles (thereby increasing the university labor crisis tenfold), I am excited about what my findings studying the Eco-Rep program suggest about the potential of undergraduates in engaging with disciplinary practices and being able to work with their peers to construct knowledge together.

While collaboratively-developed curricula aren't foreign to teachers of Composition and Rhetoric (especially graduate teaching assistants of FYC), these programs don't often take the next step in this approach that the Eco-Rep Program does by asking teachers-in-training to perform curricular invention that relies heavily on teachers' re-negotiation and continued learning of disciplinary knowledge. The Eco-Rep Program exemplifies the role of learning in teaching in ways not typically imagined in service or scholar models of student learning. Furthermore, as I have discussed earlier, another place within Comp-Rhet where we are not shy about the benefits of students-as-teachers is in Writing Centers, where we often talk about how peer tutoring works not only for the tutee but for the educational benefits of the tutor (see Bruffee; Kail, Gillespie, and Hughes).

One of the underlying threads of this project (as I explicitly discuss in Chapter 4) is to add a meaningful complication to teaching philosophies that view WAC/WID as separate endeavors. In this chapter, I add to that thread by suggesting ways in which the pedagogy of the Eco-Rep program might allow teachers to both imagine writing as its own set of practices, and at the same time one that is contextualized within specific disciplinary practices and discourses. For teachers, I hope that this chapter gives some grounding for imagining writing instruction in such a way that is not either-or, but rather writing instruction that can both serve to progress disciplinary knowledge as well as foster critical and productive individual self-reflection.

Thee Eco-Rep program, because of its context within the discipline of Environmental Science, lends itself well to a cross-contextual learning environment that includes an outreach component. That is, I believe there is something about the disciplinary practices of Environmental Science that make outreach a logical practice for learning the ways of the

discipline. In this chapter, I have discussed the pedagogies required by teachers within Environmental Science that I think allow for the careful combination of academic knowledge with lay outreach. I hope that my discussion here about these specific disciplinary and teaching practices will help teachers and administrators across disciplines who seek to engage in similar conversations.

The facilitators of the Eco-Rep Program are subtly drawing on Writing Across the Curriculum by enacting a contextualized approach to disciplinary instruction that is dependent on learning through rhetorical purpose. In that sense, the writing and outreach of the program are rhetorically-driven in ways that WAC administrators and scholars well know is one of the benefits of imagining writing as rhetorical inquiry and disciplinary invention. As I will focus on in the next chapter, the outreach component of the program is even deeply, as the outreach is focused almost entirely on crafting a relationship between author and audience through persuasion. This WAC approach is, for the program, contextualized within a more traditional WID model that views sustainability as its own discipline with canonical texts, empirical-driven research, and specific discursive modes of reading and writing (i.e., see Chapter 2 for the program's use of texts). Of course, with pedagogical values such as the Pillars of Sustainability, the writing and disciplinary participation of the class is always oriented around interdisciplinarity, a formal awareness not sought by every discipline.

In the following culminating data chapter, I turn to my student case study participants.

CHAPTER 4

SUSTAINABILITY AND STUDENT SCIENTIST-ACTIVISTS

Introduction

In this culminating data chapter, I examine how five undergraduate students at a large northeastern public research university navigate the discourses of sustainability in an Sustainability Studies program that explicitly combines classroom learning with public outreach. In order to build this examination, I use inductive coding of interview, outreach and writing data to trace how each of my case study participants view their relationship to the discourse of sustainability and how sustainability relates to other subject positions in their lives.

By doing so, I examine the holistic student experience by placing outreach, writing, and the classroom in conversation with each other to illuminate how discourses move across institutional and contextual borders, as well as how these students view themselves inhabiting different roles throughout their participation in the program. I examine how this difference is potentially influenced by their role as knowledge circulators across institutional contexts, and I suggest that the hybrid nature of the University of Massachusetts Eco-Rep program, combining classroom scientific learning with a commitment to spreading knowledge through outreach, allows for productive learning experiences for its students.

Engagement as a Rhetorical Investigation

As I outlined in Chapter I, the field of Sustainability Studies lends itself well to an examination concerned with student engagement. As a discipline concerned with outreach, sustainability is by necessity intertextual and multigeneric, and these multiplicities are often

performed in spaces where different knowledge communities interact. The field of sustainability studies is situated in a way that makes it a hybrid of the academic and non-academic, and so examining the way those sites are related in the field might help us address questions and opportunities of public and community engagement.

In this chapter, I seek to examine what the student Eco-Reps *are doing* with the knowledge and identity of the Eco-Rep program; identities that are strongly identified by an orientation towards the importance of sustainability and sustainable outreach. While I gesture elsewhere towards some larger claims about the discursive and disciplinary tendencies of science, here I am instead concerned with how the specific student experience in the Eco-Rep program promotes the discourse of sustainability. As members of the Eco-Rep program, each of my case study participants engage in numerous moments of explicit and implicit self-reflection that suggest how the role influences their own evolution and growth as students, scientists, and activists. Furthermore, participating as active members of the Eco-Rep program also creates moments of tension with other discursive identities; moments that are, understandably, handled differently by each of my case study participants.

My study directly extends some ongoing conversations within the field of Composition and Rhetoric. Specifically, examining my students' outreach work in conversation with their academic writing answers calls made by scholars concerned with student engagement (see Tinberg); I also seek to provide an addition to the important conversation regarding the relationship between engagement, literacies and transfer (see Bacon; Depalma). Both of these disciplinary threads are concerned with what students take from the classroom setting; or rather, what students *do* with the knowledge they gain from the classroom.

Emotion as a Rhetorical Investigation

One crucial aspect of student engagement is emotional work, as outreach by nature is frustrating, uneven and even troublesome at times for those who attempt to make an outside audience care about issues their audience often has no prior stake in. During my time observing the Eco-Rep Program, I began to realize just how seriously the students and their teachers take their emotions (as I outlined in the previous chapter regarding the importance the program places on individual engagement with and reflection on knowledge). It became impossible for me to ignore the vast degree to which my students, in their outreach work, were grappling with complex and immediate emotional experiences that greatly influenced both the work they would end up producing and their experience learning the content knowledge of sustainability. As such, my discussion is directly following a growing recognition within Composition & Rhetoric to take emotion more seriously as a category of analysis, to borrow Laura R. Micciche's phrase. Micciche writes that "to figure emotion as a critical term that can illuminate perspectives on the content of intellectual work in new, refreshed ways...is so take seriously the work that emotions do in the context of disciplinary formation" (7). In adopting emotion as one of my methodological investigations (which, as I outlined, happened recursively as I explored my data), I am extending Micciche's claim that rhetoric would benefit from being expanded to the realm of the emotive. As I discuss here, emotional responses represent affective interactions both between individuals within a discursive context and an example of disciplinary participation itself. To clarify, I believe that the goings-on of disciplinary participation necessitates engagement, and engagement necessitates emotion.

If such a claim is to have any validity (or value), compositionists who believe in the possible benefits of attempting to fold emotion into the realm of the rhetorical need to be careful not to, as Micciche suggests, "collapse" (3) it into a generalized abstraction. In order to do this, we may borrow from suggestions within affect theory regarding the relationships between emotion and work, while at the same time establishing modes of inquiry that rely on our already-established and perhaps *safer* methodologies. Here, as I will outline later, I have mostly done this by sticking to places where my case study participants have self-identified emotional responses. In doing so, I hope to help in a small way the larger project of developing research methodologies within Comp-Rhet that can be inclusive of emotional affect. Regarding the relationship between emotion and persuasion, Aristotle writes that "the emotions [*pathe*] are those things through which, by undergoing *change*, people come to differ in their judgments and which are accompanied by pain and pleasure, for example, anger, pity, fear, and other such things *and their opposites*" (121, my emphasis added). In his foundational writing on rhetoric, Aristotle realized that emotion was itself embedded into rhetorical situations through the interplay of ideas, thoughts and feelings between speaker and audience. In this chapter, my (surprising) findings about the emotional responses and affective experiences I observed in my students draws on the way Aristotle conceives of the emotional realm of persuasion being developed through change and through the individual speaker's negotiation of disparate and conflicting feelings.

In the following section, I will first introduce each of my student case study participants. Then, after a brief note about methodology, I will move into a holistic data analysis discussion in order to contextualize the claims of this chapter.

Participants

1. Zhi

Zhi was the first student to approach me with an interest in being a case study participant for my research, eagerly coming up to me after my observation of course facilitator Holly's[4] class on 25 February 2015. At the time of my study, Zhi is a freshman with an undeclared major, although she plans on studying "Business Marketing with a minor in Environmental Science." She tells me that she finds this combination attractive because, in her view, many businesses that claim to pursue sustainable practices "are not very aware of what Environmental Science is about and focus more on the business aspect. I think that's sometimes disappointing." As a second-semester freshman, she also took the Eco-Rep seminar her first semester; both times with course facilitator Holly.

2. Jaime

Like Zhi, Jaime was in her second semester as a freshman as well as her second semester in the Eco-Rep program at the time of our interview. When finalizing her class schedule at the beginning of her first semester, both her and her roommate decided to take the Eco-Rep class due in part to their Resident Assistant (RA) being a Sustainability Fellow[5]. Like Zhi (and like all of my student participants, in their own way) she discusses some aspects of *difference* between her experience in the class and her experience in other contexts, however for Jaime these moments do not seem to be ones steeped in disappointment or tension. For her outreach work, Jaime was

[4] Holly is also one of my course facilitator case study participants, along with Paul, Michael, and Rebecca. Their experiences are the focus of Chapter 3, "Preparing Future Public Intellectuals."

[5] Student interns who work around campus to increase sustainability awareness and work on various sustainability-related projects.

able to work alongside her RA, meaning she had more of a ready support system in place for her outreach experience than Zhi did.

3. Ann

A second semester transfer student, Ann discovered the Eco-Rep program because she was visiting a friend's dorm on campus and she began talking to someone already involved with the program. She's interested in eventually becoming a course facilitator, and cited this possibility as part of her reason for initially wanting to be involved with the program. She also mentioned her course facilitator, Michael, as being an inspiration for the kind of course facilitator she would like to be. Ann is also currently enrolled in a Sustainable Living class, and much of her discussion with me is focused on discussing how these opportunities allow her to see connections to sustainability that other students don't have. Broadly, Ann is very concerned with appealing to the widest possible audience with her outreach, and spent a lot of time enlisting the help of residents in her chosen Residence Hall to try to maximize the effectiveness of her recycling advocacy project.

4. Pat

Pat is a nontraditional student majoring in Social Justice, who decided to add a concentration in Environmental Science because they felt that there was not enough attention to issues of sustainability in the Social Justice program[6]. Pat's outreach work, as well as their writing, focus on largely on two topics; the specific interdisciplinary connections between

[6] Pat has requested the use of gender-neutral pronouns.

sustainability and computer science, and the role of personal responsibility in trying to improve the world. Pat is also in Michael's section of the class.

5. Laura

Laura was a late-comer to participating in my study; I first talked with her at the Eco-Rep end of semester potluck gathering, where she presented her outreach project. Laura went against the rules of the Program in choosing her sorority house as the site of her outreach work; technically not part of campus, but she pushed against both the program's Faculty Advisor's[7] request and the governing body of the sorority to create a recycling program in her sorority house. As the semester was already wrapping up, Laura and I were unable to meet for a formal interview; however, I engaged in an e-mail correspondence with her and she sent me some of her outreach material that she produced during the semester. She is the only student Eco-Rep in my study from Paul's section of the class.

A Note about Methodology

As outlined in Chapter 1, my coding scheme and methods underwent a number of transitions before I felt I had arrived at a hermeneutic through which to represent my data and to best capture my research questions. At each phase of my coding and data analysis, I attempted to move closer towards Janice Lauer and William Asher's definition of validity, as a research system's "ability to measure whatever it is intended to assess" (140). Initially, I coded broadly for places where the students drew from the Eco-Rep program, their wider campus experience, and their own non-academic backgrounds; I placed this coding scheme in conversation with moments

[7] For my interview with and discussion of the Faculty Advisor's role in the program, see Chapter 2.

where I saw students making a *claim* about something. This led to a coding scheme that, while not entirely unwieldly, gave me a complicated and vague definition of what I meant by the "various discourses" circulating in my data. This led to a second coding scheme where I coded *specifically* for places where my student participants mentioned sustainability; focusing on sustainability-as-discourses rather than attempting to identify myriad others.

Once I began looking more specifically at sustainability, I realized that my coding methodology itself had to change in order to continue best representing my data and how I was hoping to use it. My final analysis schema is suggestive of some of the theoretical underpinnings of Critical Discourse Analysis (Fairclough) as I attempt to use my students' language (in writing, outreach and interviews) to show how they reproduce and resist the discursive powers of sustainability. Through this inductive process, my coding became more discursively oriented around how students were thinking, feeling, and acting with relation to sustainability. Specifically, I realized it was too limiting to construct my data coding around places where I saw students simply "defining" sustainability; in order to better get at what my students were actually telling me about their relationship with sustainability, I had to unpack what they were telling me about the different ways they interacted with it. This caused me to revise my primary research questions, which I will outline more specifically where relevant in the following sections. My discussion of these themes will drive the following section.

Investigation 1: Thinking

Originally, I was guided here by the research question "what discourses are circulating in the course, both in the classroom and in student outreach?" As outlined above, as I recursively developed a more reliable way to examine my data, I revised this question as "how does

knowledge circulate in the program, both in the classroom aspect and in the student outreach projects?" In order to answer this question, my primary investigation was to determine how each of my case study participants were defining sustainability. Here I follow Vygotsky in supposing that reflective thought is public or social conversation internalized; as such, I believe that the students' sustainability thinking exists in dialogue with both their sustainability outreach (doing) and their emotions about outreach (feeling). These later sections will follow some of the scaffolding I do here with how my students are defining and understanding sustainability-as-discourse. This section will draw heavily on my collected samples of student writing, with some help from the interviews.

Nearly all of my student writing collected takes the form of unit reflections from throughout the semester. In line with my research questions, I asked my students to send me 3-5 pieces of writing from throughout the semester that would, ideally, represent their work for the class at different times. For my students (Zhi, Jaime and Ann) who also took the Eco-Rep course the semester before my study, I allowed them to include writing samples from the previous semester's class as well, *if* they thought it would help provide a more accurate sample of their work. When I received writing from the previous semester, I asked them to contextualize the writing for me, either via e-mail or during our interview.

As I outline in Chapter 3, the unit reflections are fairly open-ended. Students are asked to synthesize their outreach work and their conversations in the classroom in a short (3-5 page) piece of writing that, formally, they have a large degree of control over. For example, in all three of her unit reflections I collected, Zhi chose to take a more traditionally academic tone, writing about her experiences in direct conversation with course readings in a way that looks familiar to

response essays we might assign in freshman composition classrooms. Jaime, on the other hand, chose three different genres for each of her unit reflections that she sent me; writing variously about a proposal for her own green business, an analysis of her hometown's sustainability crisis, and mapping the life cycle of a Florida orange from planting to consumption. In their reflections, Pat chose to take a more heavy-handed and sarcastic approach, reflecting some of their cynicism from our interviews. As I will discuss in my interview analysis, while talking with Zhi she was eager to casually mention some of the readings she uses in her writing; Jaime, similarly, discussed her concerns for her hometown. As such, the unit reflections tend to elaborate or contextualize my students' ways of thinking that I saw in their interviews.

The reading in the Eco-Rep class involves a fluid combination of popular and academic sources meant for a variety of audiences (ranging from TED talks to peer-reviewed journal articles and popular magazine and blog sources; see Chapter 2), that are meant to inform students, spark conversations, and provide material for use in outreach projects. Writing assignments in class may involve students writing and actually submitting community or campus proposals to officials and administrators for the sake of hoping to enact change (such as implementing a compost system in an office building or upgrading to low-flow plumbing), some of which have a history of being passed. Examples of Eco-Rep outreach projects that have direct and long-lasting impact on the campus community include the annual UMass Food Challenge, which involves Eco-Reps working with UMass Dining to challenge students at different times to adopt specific green eating practices (not using straws, not throwing out extra food, etc.) and the annual New2U campus tag sale that involves a massive up-cycling of objects students leave in their dorm rooms at the end of the academic year.

Investigation: How are the students defining sustainability?

One of the recurring trends in the ways that my student case study participants define sustainability is that while they all have some prior relationship with sustainability, each of them define it not only in terms of their history, but also their present involvement with the Eco-Rep program. As academics, we would of course tend to define sustainability as a scientific discipline. These students, however, tended to approach it on more personal terms. In our interview, Zhi reflects on her background with sustainability:

> When I was little, my family and I had a family garden. My parents are very old-fashioned and traditional. They're not actively into sustainability but it's just this garden, something we'd work on all the time. We grow our own food which is a major part of the sustainability movement but they didn't really take it that way, although I did. So those are my roots in sustainability, and as I grow older, I feel so bad about wasting food. (Zhi Interview 2/20/15)

Zhi tells me that the Eco-Rep course has helped her reflect on how her family garden represents her "roots" in sustainability, saying that the class has helped her "put [her] own meaning into what sustainability is rather than having someone define it for you" (Interview 2/20/15). Being able to think of her family garden as an aspect of sustainable living relates, in Zhi's words, to her experience in the class helping her see that "sustainability isn't just about saving the environment; it's about social justice, it's about living conditions, it's all about things that have to do with our lives" (Interview 2/20/15). Zhi's discussion is intersectional, leading her to reflect critically on her own participation in the larger social structures of sustainability. This reflection

has perhaps made her more aware of others' irresponsibility, which in turn increases her desire to spread awareness.

Jaime and Ann express similar moments of reflection when asked to explain their histories with sustainability; Jaime talks about the "environmental hint" (Jaime Interview 3/4/15) present in nearly all of her life and academic work which helps her define sustainability as ever-present, while Ann's participation in the program helped her increase her own awareness of sustainability as a set of "opportunities that [can be] shared… with other people that are not always aware" (Ann Interview 3/4/15). None of my participants expressed feeling like their process of defining sustainability was finished by the time they began the program; nor did they express feeling that their program exposed them to an entirely new idea. This balance is significant (as I will outline later) as it connects to how the program values each student being able to define sustainability on their own terms.

Another interesting trend in how my students define sustainability is how they define it in relation to time. Drawing on her family's history growing a garden, Zhi goes on to define sustainability as something explicitly in the future tense, claiming that it is part of "our hopeful future" (Zhi "Empowerment & Action Unit Reflection") When asked to define sustainability, Zhi answers that "in my life maybe I won't even get to see sustainability, it's something in the future. Making opportunities for others to experience it is what I'm doing right now" (Zhi Interview 2/20/15). Zhi is the only one of my case study participants who define it in the future tense; for Jaime, Pat and Laura, sustainability is something immediate and always present; for Ann, it is already-defined as a reactionary ideology *against* what it is not. These differences are

similarly reflected in how each student views their own relationship to and agency within sustainability.

In discussing the Eco-Rep program's focus on stewardship during our interview, Zhi discusses anthropocentrism, a recurring theme from the class readings: "we focus on the idea of anthropocentrism, the idea that the Earth is built around humans. That we take what we want and do what we want, and that's a very unsustainable idea… everything we do [in class] focuses on our mindset and how we have to change that to change the way that we act" (Zhi Interview 2/20/15). In her writing, Jaime chose to complete two of her unit reflections by creating sustainable business proposals; one for a company and a more general plan for her hometown. In both of these unit reflections ("Institutional Change Unit Reflection" and "Plans for Brockton, Massachusetts"), she brings together personal reflection and information from the classroom to brainstorm ideas for improving sustainability in two different contexts. She also commonly draws from both her experience in the Eco-Rep class and her experience in other classes, specifically the Sustainable Living in the 21st Century class. Between the two, she says "there's a lot of overlap" (Jaime Interview 3/4/15). Jaime tells me that

> Last semester I took Intro to Social Problems. We talked about inequality, and there was this environmental hint in everything that comes from what I've learned here (In Eco Reps) … When we're talking about inequality or any race or class issue, there's always this underlying facet that has to do with the environment and the environmental situation."[8] (Jaime Interview 3/4/15)

[8] Jaime's experience with a holistic and interconnected experience in her first-year General Education classes strikes me as being slightly uncommon. The Eco-Rep class foregrounds personal engagement and responsibility in a way that allows students to critically consider their own participation within larger contexts. As such, it functions

Jaime's definition of sustainability, then, is one based on its interdisciplinarity and intersectionality. It's also immediate; in one of her business plans, Jaime outlines specific procedural steps that a business might take immediately in order to *create* sustainability. Like Ann, Jaime's definition of sustainability is based around reacting against human-caused damage, however Jaime's working knowledge of sustainability is grounded in specific actions and processes.

For Ann, sustainability is defined by conflict; it is defined by gaps created by human damage and ignorance. Sustainability is performed when someone decides to "not be lazy" or when an individual "wants to help" through the act of "seeing from others' perspectives and getting them to change" (Ann Interview 3/4/15). Like Pat, Ann defines sustainability as an action of working *against* a status quo or one's own tendency towards apathy. In her reflections, Ann draws heavily from Daniel Quinn's novel *Ishmael*, which she read for part of an Eco-Rep unit. Ann specifically references the concept of "takers" versus "leavers" from the novel; an understanding of humanity as having two possible relationships with their environment based either around living in harmony with it or living in a way that destroys it. This is reflected in Ann's writing, where she reflects that "the more people that are aware of the pressing issues and taking the first step to creating a more sustainable life, the more the idea will get passed on from person to person" ("Earth Day Reflection"). Ann's thought process around sustainability seems to be one constantly concerned with guilt, both as an individual and as a member of a race that has collectively chosen to be "takers."

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similarly to some universities' First Year Seminars or, at UMass Amherst, the Integrative Experience or Residential Academic Programs which all attempt to help students approach their Gen-Ed experience in an intentional, cohesive way.

For Pat, sustainability is always present; someone is always engaging with sustainability whether they intend to or not. When someone decides to "think of themselves as outside of these problems," they are engaging with sustainability by refusing to recognize the importance of such an action. For Pat, someone deeply concerned with the overlap between sustainability and social justice, this working definition of sustainability forces those who *do* care to always engage in critical self-reflection, because it means that "we could always be doing better." This internal definition of sustainability is not, however, a terribly happy one: Pat tells me they were "better at sustainability before I came to college" because it's easier in the college setting to get distracted or overwhelmed by other obligations**.**

For Laura, sustainability *is* the moment when theories of environmental science are applied to real-world contexts. She writes that, both for herself and for attendees at one of her outreach events, "people were surprised…they thought they knew more about recycling than they actually did" and that sustainability is only successful when knowledge is "actually put…into practice" ("Outreach Reflection") As such, Laura's understanding of sustainability relies on the actions taken by individuals passionate about sustainability, more so than it could be conceptualized in purely academic terms. Ignorance, for Laura, is an almost insurmountable problem because it leads to people "not even knowing when they're doing harm, much less caring" ("Earth Day Reflection") although *teaching* is what leads to action. Hard definitions are valuable for Laura only insofar as they result in getting "people involved and encouraged" ("Outreach Reflection") This relationship is unsurprising when placed into dialogue with Laura's decision to create a recycling program in her Sorority House, despite both the Sorority and the Eco-Rep program initially resisting. Furthermore, Laura's idea about sustainability knowledge

being useful when it's "actually put...into practice" ("Outreach Reflection") is an interesting balance between academic knowledge and public outreach.

In order to synthesize how my case study participants are negotiating the discourse of sustainability, the following table represents my coding of my interview, correspondence and observation data.

	Zhi	Jaime	Ann	Pat	Laura
Definition: "What is it?"	Future tense, something to work towards	Interdisciplinary; can be immediate; can be reactionary	Recognizing damage caused by humanity; defined by negativity	Always present, whether recognized or not	Applying ideas in real-world contexts
Purpose: "What does it do?"	Builds connections between people, helps us educate each other	Sustainability is performativity; it is shown through actions	Fosters personal engagement	Forces us to be reflective	Breaks down abstractions
Evaluation: "Why is it important?"	Interdisciplinarity, affects people differently	Importance of sustainability is measured by direct change	Can be shared with others; breaking down abstractions. spreading knowledge happens individually	Emphasizes community connections	Builds community, allows us to re-evaluate assumptions

Table 4.1: Student Definitions of Sustainability

Each of these students uses their incipient knowledge of sustainability to engage with activism and outreach in their communities. As I will discuss later, these different knowledges influence the kinds of engagement that these students have with their outreach, which in turn communicates directly with their emotional responses. This is important because it suggests how

the classroom setting represents a specific chronotopic (Bakhtin) moment where a students' prior knowledge and their learned knowledge are in dialogue with each other; further, it allows for a close examination of what then happens to this knowledge when students attempt to use it outside of the classroom setting.

To that end, in the next section I draw connections between my students' internal, reflective definitions of sustainability and their action in sustainability outreach. This will allow me to show how their reflections and their actions are influenced by emotions, and to examine why that influence may be both theoretically and pedagogically important.

Investigation 2: Doing

Originally, this question was an extension of my first, asking how students navigate these (underdetermined) "discourses." Based on my prior revision to look more specifically at sustainability within the class and outreach, I revised this to consider "how do the students negotiate the knowledges of the program and their engagement with outside audiences?" In order to investigate this question, this section seeks to consider what the students claim to be doing with or in response to sustainability. For this section, I focus more explicitly on student outreach, which consists of interview and written data where students reflect on their outreach experiences, as well as the actual outreach projects themselves.

The 2014-2015 academic year was a transitory one for the outreach component of the Eco-Rep program, as the program was currently in the process of revising what student outreach work should entail. Previously, this component involved asking students to create proposals for outreach projects and opportunities, and students would have the option of turning these

proposals into grant proposals to be delivered to university administrators concerned with sustainability. While some students would pursue this assignment through to formal submission, many students would simply write the proposal just for a grade in the class. As I outline in Chapter 2, while the facilitators and program managers saw this as a valuable pedagogical exercise, they felt that students were missing an opportunity to engage more directly with their campus communities. To that end, the facilitators revised the outreach component to revolve around students working directly with the residential halls on campus. Student Eco-Reps sign up for certain buildings on campus to "cover," and then spend the majority of the semester working with Resident Assistants and Resident Directors to devise a series of outreach projects that would best fit the needs of each building's community. For many Eco-Reps, this took the form of a combination of different kinds of projects, with some of the most common being fliers, posters, speeches, trivia or game nights, recycling drives, or changing the recycling facilities in the buildings. Most Eco-Reps did a number of these projects, developed in dialogue with their chosen building's Residence Life staff.

For this portion of my discussion, the following table represents my data analysis regarding places where the students identified some aspect of their engagement with sustainability through the different aspects of the program.

Investigation: What do the students claim to be doing with or in response to sustainability?

For a large number of student Eco-Reps, this outreach experience led to varying degrees of frustration, as many of them had their first encounters with disappointment when attempting to bring sustainable awareness to communities that did not share their passion. For a number of

students (including my case study participants Pat and Zhi) this meant finding the Resident Directors too busy or inaccessible to effectively collaborate with. For others, including Laura, this meant finding the Resident Directors and Assistants to be the *only* receptive members of their chosen communities, while finding little interest from the general student population.

In her recycling poster made as part of her outreach work, Jaime writes to her audience: "By making simple changes like paying attention to what bin you are throwing your waste in, YOU can improve the state of the earth one smart decision at a time. Everyone shares responsibility for… the entire Earth community! Soon, it will be too late. Just pay attention!"

Figure 4.1: "Reduce Your Footprint"

This performance of sustainability makes sense based on what we know of Jaime's own understanding of sustainability as an immediate, process-based pursuit that can always be engaged with. Jaime's use of the imperative (and simple) "Eat Less Meat!" and "Keep It Simple" reflects her own thought process on what sustainability is and how the work of sustainability can be performed.

Zhi tells me that if she had seen the mislabeled, inaccessible recycling bins as "just a student," she might have found them frustrating but she likely wouldn't have tried to fix them. Even though she was a new Eco-Rep at the time of her experience, however, she felt that her status as an Eco-Rep gave her the "responsibility" to actually try doing something about it. Zhi says, "so like any good Eco-Rep, I sorted it. Banana peels do not belong in the recycling, neither do plastic Walmart bags – at least I know that, even if Sycamore residents clearly do not." From this, I can make two observations about how Zhi views her role in the Eco-Rep program and wider campus community. Firstly, that Zhi views her status as an Eco-Rep as something that has changed her role as a student member of the campus community. Further, the Eco-Rep program has fostered for her a complicated relationship between personal responsibility and permission, one that will likely continue to become more complicated for Zhi as she grows as a student.

Zhi decided to check out the bulletin boards in Sycamore Hall- placed there by the Resident Assistants on each floor, to see if recycling was addressed on any of them. "It occurred to me that as horrific of a recycling situation they have in Sycamore, a single bulletin board dedicated to just recycling would be a good place to start and build a foundation for environmental literacy." Zhi emphasized the relationship between the content of sustainability and the form of "hands-on learning," which she describes as being especially important for

learning sustainability because it improves her ability to apply her knowledge in a teaching setting to those outside of her classroom. Ann suggests something similar in one of her outreach reflections, discussing her role: “I cannot stop students from letting all their trash pile up in these small bins because they are too lazy, all I can do is inform them.” (Recycling Reflection). In that sense, the discourse of the Eco-Rep course, with its emphasis on student scientists continually reflecting on their own attendant participation in societal structures, innately fosters (for Zhi and Ann) the kind of learning that best allows them to spread awareness to lay audiences.

Zhi tells me that she views the reading in the class as being there as something that "we can take what we want" from for the sake of bringing to outreach work. She views her role as an Eco-Rep student as "contributing to the conversation" as a "communicator" of the issues that she learns in the classroom. In her reflections on her recycling project, Zhi draws multiple connections between outreach and the reading from the classroom. She writes: “through my quick excursion, recycling seems to be a task that is widely ignored and vastly deemed irrelevant by the denizens of Sycamore. I am sure all the residents must be thinking, 'why bother?' - perhaps they ought to read Pollan's article.” Here Zhi gestures to her first semester as an Eco-Rep when the class included a unit on anthropocentrism. In her reflection on that unit, she referenced the Michael Pollan article, “Why Bother?” more explicitly, writing that “as Pollan says, 'if you do bother, you will set an example for other people'” (Pollan 4). Similarly reflecting on her choice to study both Business Marketing and Environmental Science, claiming that "If enough people switch to a certain product then maybe another company that isn't sustainable would think, maybe we should follow suit and adopt their ideals." For Zhi, these are productive reflective moments where disappointment can be assuaged by thinking of herself as an aspiring model for the kind of reality she would like to see.

These moments of frustration in their outreach activities seem to correlate with moments of critical self-reflection, usually in the form of the students reflecting on what more *they* could do as individuals to raise environmental literacy. For example, Pat reflected that their Resident Director seemed to find their poster ideas too "simplistic" and realized that they needed to include more hard data to appeal to their chosen campus community. This revision is suggestive of aspects of the Eco-Rep program's pedagogy designed to help students push against possible echo-chamber tendencies of sustainability; in order to make his arguments persuasive, Pat had to re-evaluate the relationship between their material and their chosen audience. In the culmination of her outreach project, Laura created a night of Recycling Trivia to be played by residents of her chosen building. However, only Resident Assistants actually attended her event, which led to her expressing frustration during our interview but later reflecting that, as an audience to help raise environmental literacy, the Resident Assistants have access to a wider audience of students than she could hope to reach with one event. For Laura, this meant revising her assumptions about success and audience in outreach, and led to her developing a more complicated understanding of university communities.

Based on this analysis, the following table represents my summary of interview, observation and writing data regarding how each of my student case study participants view the outreach, in-class, and writing components of the Eco-Rep Program in terms of how each differently enacts an aspect of sustainability.

	Zhi	Jaime	Ann	Pat	Laura
Role of outreach	To educate for the sake of bringing others into the community of sustainability	Show others access/ease of change; putting yourself on display to show others; being public	Informing others who are not aware; sharing academic knowledge to outsiders	To bring classroom knowledge to outsiders; to engage in community conversations	To inform as wide of an audience as possible; to APPLY theoretical knowledge
Role of classroom	Create shared community of those passionate about sustainability	Raise individual awareness: change due to classroom experience/ hearing others' experiences	Self-reflection through reading and asking questions; thinking deeper; not just "accepting" answers; Reading gives a vocabulary to voice fears	Creates learning space to share ideas and inform outreach; models community and collaboration	To build a community of passionate individuals
Role of writing	Synthesizing emotions expressed in conversation	Solidifying informal thoughts	Self-reflection; working through tensions	To express and vent frustration	To work through disappointment and move towards change

Table 5.2: Roles of Program Components

Along this occurrence of self-reflection and intellectual growth, students who encountered frustration or disappointment in their outreach also developed nontraditional or alternative solution to their roadblocks. For Zhi, this took the form of physically re-arranging the layout of a recycling room without permission. For Pat, this meant enlisting the aid of a friend who lived in their chosen building to help them hang fliers after the hours that their student card

would allow them access to the building. For students who encountered more positive response to their outreach, however, the resulting *actions* were similar; students (Laura and Jaime especially) would reflect on how they could develop future projects. This was reflected in their writing; Zhi explained in one of her unit reflections that "it made me want to try harder next time, so future students wouldn't be so ignorant," and in an interview, Jaime expressed similar looking-forwarded responses to her more positive experiences: "it was exciting. It made me happy to see people deciding to care about something because of what I showed them." Students who encountered positive reception to their work did not simply pat themselves on the back, nor did they engage in less critical self-reflection than those whom were met with resistance.

Investigation 3: Feeling

This culminating section of my data analysis results from my recursive revisions of my previous two questions. While investigating the preceding questions, I realized that my data analysis was missing a foundational component; emotion. I was able to realize this because it was so prominent in all of the written data and outreach reflections I obtained. My first rounds of coding did not count for emotion, and I believe this is partly to blame for my initial constricted coding schema; the students' performance of discourse and knowledge of sustainability through their outreach is very emotion-laden. So, the added investigation based on emotion led me to consider: what is the role of emotion in students' engagement with sustainability?

In my investigation of emotion here, I'm drawing on Patricia Ticineto Clough's definition of the affective turn in composition and rhetoric as being driven by "information/communication systems including the human body…including the circulation of value through human labor… and in biopolitical networks of disciplining, surveillance, and

control" (3). The outreach work I examined my students participating in is affective in the broadest sense in that it is embodied by each individual student engaging in their own labor; further, this work happens in the specific context of the Eco-Rep program. Following Ahmed, my examination of emotion necessitates considering how emotion and affect influence and are influenced by students' relationships with their communities. As such, I am less concerned with defining emotional responses but rather looking at the "work" of the emotions (Ahmed). In other words, as I recursively engaged with my data, I came to realize that it would have been impossible (or at least, reductive) to talk about the richness of the outreach work my students were doing without talking about the emotional context for this work.

In order to identify emotions in my students' writing and interviews, I looked for places where emotion was either specifically mentioned (e.g., Ann writing that the work of sustainability can be "saddening") or implicitly expressed (e.g., Laura writing that the low attendance to one of her projects was "tough for me to see"). As such, I do not argue that emotional responses based on my own interpretations of student reflections, but rather to identify emotional responses in each students' experience that seem to be clearly present and that they are expressing intentionally. As I suggested earlier, these emotions seem to be connected to the ways in which my students both define sustainability and perform sustainability outreach. The relationship is not a causal one; to infer that these students are simply feeling positive or negative emotions based on how their work is going would be to reduce the complexity of the dialogic connection between emotion and knowledge. As Aristotle explains, inhabiting emotions during a persuasive action often requires a speaker to feel opposites (121), and the nature of rhetoric itself requires a speaker to combine "analytical knowledge and knowledge of characters...of mental faculties [and] sciences" (53).The emotions I refer to here from my data analysis are, again, ones

that have been directly and specifically expressed by my case study participants and as such represent only one aspect of their discursive performance of outreach.

For Zhi, her feelings of frustration are directly connected to why she also feels hope. Feeling "frustration" when she entered her chosen Residence Hall and found the recycling bins mis-labeled and in a hidden, relatively inaccessible part of the building allowed her to find positive motivation to work against a perceived injustice. "I thought I would get in trouble," she says in our interview, "because I was crawling up these recycling bins trying to move them and change the labels" (Interview 2/20/15) In her reflection on her outreach experience, appropriately titled "Recycling: A Myth in Sycamore Hall," Zhi again emphasizes both frustration and the importance of personal responsibility in her conception of what it means to work in sustainability. Zhi writes: "consciousness, leadership, awareness – these are all qualities and characteristics thought to be associated with Honors students. However, in the case of recycling, that does not ring true whatsoever, especially not in Sycamore Hall" ("Recycling: A Myth"). For Zhi, the tension between her expectation (perhaps magnified by her subject position as an especially eager and motivated first-year Honors College student) of what it means to be in the Honors College and the material reality she encountered during her first Eco-Rep reconnaissance venture is especially difficult for her. Consciously drawing on UMASS' own philosophy of the Honors College experience, Zhi here uses her awareness of that mission statement to emphasize her frustration with the messy and disorganized state of recycling in her chosen outreach area. Reflecting on how her role as an Eco-Rep has changed her idea of what it means to be a student, Zhi says: "I feel more responsible" and "I feel like my decisions are more important now" (Zhi Interview 2/20/15). Furthermore, as a first-year college student, Zhi's development of her

intellectual and personal maturity are still very much in progress, which may account for some of her challenges with frustration throughout her outreach work.

In Jaime's case, her knowledge of sustainability as an interdisciplinary, performative action helps her to feel both pride and community inclusion as someone working towards positive change. Because Jaime sees more positive connections between her work as an Eco-Rep and her experience in other classes, she doesn't express tension between these two different sets of experiences. Instead, her experiences create for her a holistic and interconnected educational setting where the various roles that she participates in on campus and at home are constantly in dialogue with one another. To illustrate this dialogue, Jaime tells me an anecdote about going home to visit her family for a weekend shortly before our interview:

> When I was home this past weekend I told them I would not use a Styrofoam plate because of what I'd learned in this class and the NRC (Sustainable Living in the 21st Century) class, and I just learned a ton of information about how Styrofoam is terrible, it never fully decomposes, and all that. So I literally put my food on the tablecloth and ate from there, and everyone thought I was ridiculous but I was making a point. (Jaime Interview 3/4/15)

In this reflection, Jaime shows confidence in her ability to "make a point," even while she laughs at the absurdity of eating directly off the table. Jaime self-describes as not being "environmentally-aware" before college, and notes that she has also started "forcing" her family to recycle and compost (something that she slyly attributes in part to her being the oldest of three children and having some degree of clout in the household). She says that her family, then, has also been "changed" by her experiences in the Eco-Rep program, believing that while they

wouldn't have started practicing green habits at home without her influence, that now they would continue to do so even if she wasn't home to monitor it. While Jaime expresses mostly positive emotions in response to sustainability, this does not result in her becoming complicit or lazy; rather, these reflections show a motivated activist who is experiencing positive reinforcement and wants to keep getting better at what she is doing.

In Ann's case, her emotional responses exist in a near-constant state of tension between feeling confidence in her work and guilt for her own participation in hurting the environment. In relationship with her understanding of sustainability defined as something negatively defined by what it reacts *against*, Ann writes about her "fear for the day that nonrenewable resources are used up" and speaks for the human community by saying that "we are not giving back to the Earth." As with Zhi, however, these feelings of fear allow her to feel some degree of motivation, urging that "everybody must be educated in the destruction that we are creating and spread the *feeling of importance* everyone has on this Earth for making a change" (my emphasis). Ann also writes that attending the group events during Earth Day was "great" and "exciting… to see so many people interested and participating in the events that the university had to offer; it brought a sense of community" (Earth Day Reflection). Like Jaime, Ann's emotions help her to feel that sustainability itself is a community that, among other things, helps its members feel like important actors toward positive change.

For Laura, the tension between emotions exists between her optimism regarding the work of sustainability and her disappointment at being met with low attendance at her outreach events. She writes that it was "difficult," a "tough turn-out for me to see" and, when some of her audience members were loud and disruptive, it was "hard to hear." She was, however, optimistic

that while her projects did not reach a wide audience of students, she was able to talk to a large number of Resident Assistants; as I suggested earlier, this led to her changing her concept of audience in performing outreach. She also eventually expressed positivity ("that was a good way of looking at it") and suggested ways to revise future work to reach a wider audience. Similarly, Laura found a "pleasant surprise" ("Earth Day Reflection") at the Earth Day events that allowed her to feel like part of a larger community.

Pat's emotional responses are perhaps the most consistently negative; much of their reflection in both the interview and their writing involves a degree of cynicism and pessimism, both about themselves and the campus community. Pat writes that they were "blown off" by the Resident Director of their chosen hall, and that the Earth Day events did not, for them, "foster a sense of community in the Eco-Rep program" ("Institutional Change Unit Reflection") because of low turnout at the events they attended. Connecting to their understanding of sustainability as ever-present, however, Pat is able to develop a sort of angry imperative regarding what it means to work in sustainability. Pat claims that the Eco-Rep class allows for a chance to learn "from other people," which they argue is important because "people here are following personal beliefs… generally people I know in other majors aren't all that cynical about themselves, they think of themselves as outside of these problems" (Interview 3/7/15). For Pat, cynicism is not an excuse for apathy, but rather a reason to continue learning and working.

Below is a summary of my findings of the "dominant emotions," which I define as those most commonly expressed, in each student's data set in their discourses around sustainability outreach.

	Zhi	Jaime	Ann	Pat	Laura
Dominant emotions	Disappointment, humility, guilt, anger, hope	Pride, inclusion	Uncertainty, frustration, guilt, confidence, optimism	Cynicism, certainty, disillusionment	Disappointment, excitement
How emotions are used	To express imperatives: to reflect on what should be done	To teach others	To self-reflect	To imagine the kind of community that would be better	To engage in self-reflection
Role of negative emotions	Disappointment leads to personal responsibility	Frustration at not being seen/public leads to desire to be more public	Reflecting on challenges and trying to develop solutions; being motivated by fear	To reflect on personal failings and imagine change	To imagine solutions
Role of positive emotions	Expressing connections between people	Welcoming others into the discourse community	Gratitude and confidence at being informed	To feel included in a community	To reflect on success and consider how to improve

Table 5.3: Roles of Emotions

So, in each of my case study participants, there are moments of emotional tension in their discourses that in some way reflect their understanding of sustainability-as-knowledge or sustainability-as-outreach. I suggest that these moments of emotional tension are productive learning experiences, fostered at least in part by intentional pedagogical choices made by the course facilitators and program managers[9]. Furthermore, as I have suggested, in each of their

[9] In Chapter 3, I suggest how the Eco-Rep facilitators emphasize personal accountability and individual participation in otherwise potentially abstracted philosophical ideals of sustainability. Of course, these "productive" moments of tension involve no small amount of disappointment on behalf of the student Eco-Reps. In Chapter 3 I discuss how the Eco-Rep course facilitators attempt to navigate the "doom and gloom" aspect of teaching sustainability

own ways my case study participants balanced negative and positive emotional responses to help them find motivation to keep working. Lastly, for my student case study participants, the language of emotion works in conversation with their developing content knowledge of the discipline of sustainability to help them navigate moments of tension. For these students, when the content knowledge "matters" (as in, when it must be tangibly used outside of the classroom), it leaves the sole realm of content knowledge and gains new complexity as it is re-contextualized in other settings. Whereas the course facilitators, as more advanced undergraduates, are able to draw more expertly on disciplinary content knowledge, the student Eco-Reps "fill in the gaps" with their more familiar language of emotion. As such, emotions may be given more credibility in classroom settings as something that, as Ahmed suggests, as something that helps assign value to ideologies, bodies, and contexts.

Further, the primary difference in students' experience due to their expressions of positive or negative emotions is in the way their reflection is directed. Students who express or encounter more negativity in their outreach express more inward-directed self-reflection, while students who express more positive emotional responses express more outwardly directed reflection, often towards how to teach or help others. In this regard, I hope to offer suggestions for complicating the conversation around student engagement to include a more holistic understanding of how it relates to emotion. The students who define sustainability in negative, pessimistic or cynical ways are more likely to also express negative emotional responses to their

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and environmental literacy. Specifically, I highlight how facilitators Holly and Michael both developed different but similar pedagogical moves to never leave their students with neither too much echo-chamber optimism nor apocalyptic defeat. As more advanced undergraduates than their students, the Eco-Rep course facilitators are better equipped (at least in part due to experience) to deal with disappointment, suggesting a developmental track similar to William Perry's movement from dualism towards relativity.

outreach work, while students who define sustainability in positive or optimistic ways are more likely to perform such definitions through their outreach work. This has theoretical implications for the relationship between prior, existing knowledge and how students process new and learned information. This suggestion also has pedagogical implications regarding how teachers contextualize disciplinary knowledge.

As I have outlined, these students' emotional responses matter for this study because: emotional responses and content knowledge have a dialogic relationship; students use emotional responses to help them *navigate* moments of tension, and; students' willingness to perform outreach work is not seemingly affected by what kind of emotion they experience during their work, but rather these emotions affect where their reflections are typically directed. To repeat: in places where students experience negative emotions, they would engage more directly in inward reflections, considering questions about self-improvement and what else could be done in order to eventually reach positivity, and; when experiencing positive emotions, students would reflect outward on their larger communities.

One final example of this outward reflection on a more macro-scale is a recurring Eco-Rep annual participation within UMass' Earth Day activities. Each year, a number of student Eco-Reps and other members of the sustainable community at the university lay supine or prone on the ground outside of one of the university's busiest public walkways, as pictured below:

Figure 4.2: "Earth Day Activism"

Each student has a piece of paper on their chest or back, with a word written on each that symbolizes people who have been killed, diseased, or displaced by issues in sustainability, words like “flooding,” “drought,” or “pollution.” This activity, which was started by a student Eco-Rep in 2013, continues to be one of the most visible and most popular of the students’ options for participating in Earth Day events. Of my case study participants (students and facilitators), all but one of them chose to participate in this event. In their reflection on participating in this Earth Day activity, Pat explained that “this was one of the more directly and easily visible things we did… it made me feel like I was showing people in a way where we all need to come to terms with what we’re doing to harm the environment” (Interview 3/7/15). This activity could be seen as an expression of the sense of frustration typically felt by many activists, and turned here by the Eco-Rep Program students into a hopefully teaching moment for their peers.

Discussion

In this final section, I synthesize my claims throughout the chapter in conversation with my data analysis. This discussion attempts to be localized and specific to my study, and my proposed implications stays as close to my data analysis as possible[10]. Below are some of my key findings from Chapters 2 and 3 placed into conversation with my preceding student data analysis.

1. Students having an active-participatory role in the class that models the active-participant demands of outreach work;
2. the Eco-Rep program is consciously designed (see Chapter 2) to help students feel like engaged members in a community of peers;
3. the class asks students to do things that they generally aren't asked to do in other classes, which helps distinguish it from students' expected academic roles;
4. the knowledge of the classroom is introduced to students (see Chapter 3) not for the sake of later being assessed on knowledge retention, but for the sake of teaching that knowledge to outside audiences;
5. the Eco-Rep program encourages students to inhabit, rather than reject, the tensions they discover within their various roles as members of a university community.

These findings are significant as they show how the pedagogical decisions of the course facilitators combine with student reflections combine to represent a holistic learning environment for the students. Each in their own ways, my student case study participants found themselves experiencing *conflict* with their surrounding environments as part of their Eco-Rep work, or perhaps more broadly, simply by *being* Eco-Reps. In each case, this conflict led to them acting differently than they would have imagined otherwise doing. I believe that my analysis throughout also suggests that the teachers of the Eco-Rep Program are, at multiple levels, aware

[10] For more discussion about the theoretical implications of this study on larger interdisciplinary questions of public intellectualism, see Chapter 5.

of their students' possible frustrations and difficulties with outreach work. And yet, I believe the program (and ones like it) would benefit from being more explicitly aware of the tensions expected from participating in outreach work. My findings are suggestive of WAC-oriented pedagogical moves that could allow a program like Eco-Reps to more formally recognize these tensions, and future research would examine this more specifically.

With regard to recognizing these tensions, I would no sooner suggest that Zhi is developmentally *behind* Jaime for having her first year as an engaged student be met with disappointment than I would suggest that Jaime is developmentally behind Zhi for *not* encountering disappointment in hers. What I might suggest, however, is that Zhi could have benefited from having a more supported, holistic network between her different contexts, and that Jaime could have benefited from having a bit more tension between hers. I'm reminded of Joe Harris' suggestion that we approach discussing community by allowing "for both consensus and conflict" (18). Within the Eco-Rep program, students design their own outreach activities based on how *they* assess the needs of the physical space on campus that *they* volunteer to cover, which is evocative of Harris, who writes that his work within universities has been universally accompanied by a "sense of difference, of overlap, of tense plurality, of being at once a member of several communities and yet never wholly a member of one" (11). The self-directed nature of the work done in the classroom models the kind of work necessitated by the outreach and, for each of my case study participants, allowed them to craft their own individual relationships with that work.

In that sense, the student Eco-Reps and others doing similar work both use and need rhetoric to help them craft their persuasion to their audience. Bryan Garsten writes about the

relationship between emotion and rhetoric, a criterion for the practice of judgment as "a keen perceptivity and relatively steady habits of emotional response. When people have all these traits, they find that they can draw upon their various perceptions, feelings, and opinions to respond in a relatively deliberate way to whatever particular situation confronts them" (8-9). In this sense, I argue that the students' emotional experiences while learning the disciplinary content knowledge of sustainability and performing outreach complicated and enriched their ability to engage in a domain of rhetorical persuasion with their audiences. Garsten further draws this comparison between rhetoric and emotion in his reading of Aristotle, arguing that "[Aristotle] thought citizens tended to judge better in deliberative settings, where they were situated in *their own perspectives and experiences*...they exercised their judgment best when they could draw upon structures of perception and value acquired throughout their lives" (119, my emphasis added). For the students, this gives their experience the kind of diversity suggested by Greta Gaard in defining a healthy ecosystem (163), and as the findings of this study suggest, allow for productive (if challenging) educational experiences as students negotiate their individual experiences, emotions and outreach work with the disciplinary content knowledge of the classroom. Raúl Sánchez argues "for agency [implicated]... more thoroughly with the environment without immersing it entirely in that environment and thereby removing the possibility of responsibility" (31). The Eco-Rep program, by emphasizing students' own agency in choosing the sites for and makeup of their outreach work, allows for discursive participation outside of a pre-determined framework.

What we can learn from these findings is that the unpredictable nature of outreach work does not make it a necessarily risky learning environment for students. A teacher who shies away from assigning outreach-based projects because she is worried that her students will be met with

resistance (or have difficulty being met with *anything at all*) can, by including in the work moments of critical self-reflection, help her students engage in productive learning opportunities regardless of audience reception. By its nature, outreach work represents a complex agentive subjectivity for students, helping them engage more directly and critically with their surrounding environments, and leading to productive learning experiences.

In the last chapter, I reflect on the whole study, and provide what I found to be my biggest pedagogical and theoretical takeaways from this research process.

CHAPTER 5

A SHARED CONCERN:

PUBLIC INTELLECTUALISM IN THE SCIENCES AND THE HUMANITIES

Introduction

This chapter will conclude my project by discussing some possible implications of my case study for the academy and, more specifically, those within Composition and Rhetoric. After first outlining some surprising researcher observations from my project as well as what I believe were the limitations and future work required of this research, I will then discuss some of what I observe to be the most significant areas of connection between the humanities and sciences in terms of pedagogy and outreach based on my case study. I will offer some suggestions (both pedagogical and theoretical) for ways that we may conceive of the relationship between the sciences and the humanities as well as between the university and various publics. Lastly, I will turn again to the concept of public intellectual, discussing ways that it represents a shared concern of both the sciences and the humanities; a concern that each field is differently adept at addressing.

As I outlined in the previous chapter, my semester observing the Eco-Rep Program gave me a few different realizations at different steps in the research process. I was initially drawn to the program for its stated purpose combining classroom knowledge with outreach work and, after spending some time getting acclimated to the healthy environmentalist community at the University of Massachusetts, I was further excited by the active-participatory student role that is so highly valued by the Eco-Rep Program. Both the students, in their expectations in the class, and the facilitators, through their experiences engaging with the course material, *model* the

process, challenges, and rewards of outreach work. This modeling is done because of conscious design choices made by the Program Manager, Faculty Advisor, and Course Facilitators, showing me that the kinds of exciting and engaged outreach being done by the student Eco-Reps was no happy accident; instead, the scaffolding of the program itself is tactfully done in a way that fosters a process of teaching-as-learning that leads to the desired product of engaged student learning and outreach.

My textual analysis of some of the course's key texts throughout one lesson unit helped me to realize how this pedagogical scaffolding worked at the highest level, and how careful and intentional philosophical orienting from a disciplinary expert (the Faculty Advisor) can allow for important knowledge threads to be traced all the way through the program and finally to student outreach. While the knowledges change contextually depending on their purpose and, ultimately, students showed uptake of some knowledge threads and not others, the Eco-Rep model does not seek to be the only and final teacher of content knowledge to its students. This allows for an understanding that, while some content knowledge will indeed not be transferred all the way through to public engagement, it is reductive to call it a loss; perhaps more apt would be to consider it, as Sloan suggests, an act of knowledge translation (468).

Crucial to the kind of pedagogy being done by the Eco-Rep Program is the clarity with which content knowledge is introduced to students: in the program, knowledge is introduced to students not for the sake of assessment or pure retention, but for a specific purpose. For the students, this creates a context where the classroom setting is a resource to be used and adapted for their own individual needs. As students do so, they encounter their own frustration and negativity, their own challenges and motivations; but without viewing outreach as only successful when it is positive and rewarding, the Eco-Rep Program and similar learning contexts

are productive because of the emphasis they place on the *process* of outreach itself as educational.

Program Observation: Limits, Suggestions, and Surprises

Programmatic assessment is easier drawn from putting generalized observations (sitting in on classes, lesson planning meetings, etc.) into conversation with specific examples of phenomena. What I mean is that if I were to redo this study, I would perform it in two steps: first by conducting the generalized, broad holistic observations that I did thoroughly in this study, and secondly by later using the initial findings and directions to conduct a second set of more rigorous and specific examples. I had some difficulty getting students (especially these busy ones!) to make time for interviews; I would buttress this by doing more observations relying on a more rigorous note-taking (or recording) process. On the whole, I would strongly encourage researchers doing future work that relies heavily on program observation to perform a pilot study first, even a limited one, and be mindful of how quickly programs like these can and do change.

Related to this, I also encourage future researchers to always allow themselves to be surprised. As I have suggested throughout, I was quite surprised by the degree to which emotion became a necessary investigation of this study; further, the complex relationship between emotion and engagement is among the most important takeaways from this study.

Theoretical Takeaways: Public Intellectualism in Science and Humanities

My discussion of popular intellectualism has attempted to imagine ways in which both the sciences and the humanities might conceive of more complicated relationships between experts and laypeople. In 1981, Wayne Booth noted that America has a history of college lecture series and literacy journalism, what he called *haute vulgarisation*. "The tradition is not dead…

but I have the impression that it is pursued these days more vigorously among scientists than among humanists… Where is the *Scientific American* among our journals of literary study?" (58). Michael Warner claims that the understanding of the relationship between academic and public knowledge-making spaces is, within Western intellectualism, incredibly flawed. He argues that:

> the assumption seems to be that a clear style results in a popular audience and that political engagement requires having the most extensive audience possible. This view is assumed rather than reasoned, which is why anyone who dissents from it can only be heard as proposing inanities: that bad writing is necessary; the incomprehensibility should be cultivated (Warner 138)

Citing Judith Butler, Warner notes that these attacks on academics often come specifically to those within the humanities, and *especially* against Leftist academic thinkers attempting to proliferate their threatening views. Warner poses the hyperbolic question, then: "should writing intended for academics in the humanities be readable for everyone when we don't expect the same from writing in physics?" (139). This question relies on a glossing-over of the often-inherently and quite public Leftist progressive agendas routinely taken up by those in the sciences. If we're going to talk about the Leftist-humanist agenda as a perceived political threat, then we might also discuss the Leftist project of the sciences is an inherently *public* concern.

The public intellectual as a figure in both the sciences and the humanities is traditionally seen as a solitary individual. Warner writes that

> For many people, 'public intellectual' has come to mean a quasi-journalistic pundit with a mass following... public intellectuals are those who seek socially expansive

> audiences…If one were to really argue that everyone should write clearly and that everyone should take political positions publicly, one would be arguing in effect *against* the idea of a public intellectual as a special role (144).

Other scholars (see Farmer) suggest a more complicated position of the public intellectual, although Warner's definition here is useful to suggest how the public intellectual might typically be seen in society. I suggest instead that we might conceive of the public intellectual as a rhizomatic (Deleuze and Guattari) role that is not the burden of special individuals but rather a shared role between publics, experts, and laypeople intersecting at various points. Warner goes on to write that "any expert knowledge is in an important way nonpublic: its authority is external to the discussion. It can be challenged only by other experts, not within the discourse of the public itself" (145).

Any implications I can infer from this project lead me to argue for a complication of this understanding: while disciplinary knowledge might be external to public discussion, the public can and often does change the *stakes* of and consequences for disciplinary knowledge. Within the sciences, there have been discussions of both public intellectualism and popularizations of scientific thought. Drawing on Ulrich Beck's concept of the world risk society, Robert Danisch claims that science functions to "produce uncertainty, fear, and danger" (173) in the general public. The management of risk, according to Beck and Danisch, has become more important to the function of society than the production of goods, and scientific discourse is how the public communicates discussions of managing risk. Furthermore, advancements in science and technology that seek "to improve the human condition is the central causal factor for the explosion of risks and the deepening of uncertainty" (179). Beck imagines a "public science"

(Danisch 185) that would function as a sort of watchdog against some of the dangerous consequences of unchecked scientific discourse. Danisch contends that Beck's idea of a public science is limited because he offers "no generative conception of how this competence will emerge," (185) however, as Danisch suggests, a more practical (and possible) realization of this function may come from the field of rhetoric. Alan Gross claims that “rhetoric mediates not only the development of knowledge in all disciplines, including science, but also the existence of entities upon which this knowledge is developed” (285). Taking this assertion a step further, Heather Graves claims that “if we study the language that scientists use to conceptualize their objects of study….we can gain insight into the role that rhetoric plays in both the epistemology...and the ontology of science” (181) I align myself with Graves in asserting that we should not simply “collapse the fields of study [rhetoric and science] into one another,” (191) but rather look for places where rhetoric can be productively applied to scientific inquiry and epistemology. I would also suggest that scientists in other fields outside of sustainability look at the ways in which Sustainability Studies is emerging as a field both academic and public.

Patricia Sullivan and other feminist scholars (Fee, Harding) have critiqued the "objective-subjective and rational-emotional dichotomies central to the scientific enterprise" (56) that make scientific inquiry tied to inherently masculine ideologies. By folding emotion as a critical domain of scientific inquiry, I believe we are upsetting this masculine dominance; further, as scientific outreach relies inherently on persuasion (drawing as it does from modes of persuasion other than logos), outreach by nature is a subversive, agentive action. This is a further emphasis on what Sustainability as a field can offer the wider discipline of science. As such, I might summarize the theoretical takeaways of this project by making two interconnected suggestions:

1. Rhetoric is necessary and needed in the realm of science.
2. Emotion is necessary and needed in the realm of rhetoric.

These claims echo what I outlined in the opening chapter and, if nothing else, I hope that my examination throughout this study have helped emphasize how powerful these suggestions might be for students, teachers, and researchers across disciplines. In the next and final section of this project, I will discuss possible pedagogical implications for this study.

Pedagogical Takeaways: Futures of Publics Intellectualisms

The primary foundation of this project all along has been to place student science outreach in conversation with the disciplinary conversations of writing and engagement from Composition and Rhetoric. In doing so, I attempt to build a larger argument about how these two fields (Comp-Rhet and Environmental Science) have something specific to offer one another. The natural extension of this argument is, therefore, that otherwise disparate disciplines benefit from conversing with one another with regard to pedagogy.

From the beginning, I conceived of this project as talking back to myriad calls I've heard about the crises of the Humanities, the loss of cultural relevancy of the university, and the pitfalls of disciplinary isolationism. I always imagined that this project would help me suggest ways that the Humanities would become better public intellectuals; by looking at people doing "successful" outreach, I imagined we could learn something about how to keep getting better at talking to people outside of our own disciplines and, by doing so, build "cultural relevancy" (Trimbur) and re-imagine the notion of public intellectualism in exciting ways.

Instead, I've changed what I think of when I imagine public intellectualism. Instead, I've laid the framework for a methodology of examining publics intellectualisms that I believe is more sustainable. In the old paradigm, it largely did mean something very close to a demagogue or a pundit. In order for a conception of public intellectualism to be sustainable, instead, it has to be: reproducible, accessible, persuasive (hold up to scrutiny), and contextual. What does it mean to be a public intellectual? In the changing paradigms of the 21st century, the idea of the mass audience (while still holding undeniable ideological power) is shifting to account for realms of meaning-making that are inherently both localized and contextualized within larger disciplinary and ideological settings. We always have publics, whether we formally recognize them or not. To ignore them and the ways that we embody them is to deny a natural extension of our humanness, and to create discursive separations between ourselves and the ways that we inherently want to make meaning.

Is the Eco-Rep Program actually, per the third chapter of this project's title, preparing future public intellectuals? I believe that it is, but only strictly in the way I have outlined above; the program does not formally seek to prepare students for pundit-hood; nor does its success depend on students each going out and eventually becoming facilitators or majoring in Environmental Science. The balancing act between localized and contextualized is a key component of everything I have examined in these pages and, I believe, a summarily key component of what it means to be an Eco-Rep.

As such, I believe this study has two large pedagogical takeaways:

1. Recognizing emotion as a formal category of critical thought and persuasion within classroom settings

2. Recognizing the benefits and possibilities of students as teachers and teaching-as-learning pedagogy

The first pedagogical takeaway is the one that I was not expecting at the outset: using emotion as a category of critical thought (Micciche) within rhetoric and, further, formally recognizing the necessity of categorizing emotion as persuasion within public intellectualism. The second is an emphasis on the benefits of students as teachers or, perhaps more broadly, the idea of teaching-as-learning as a way of fostering disciplinary expertise. What I have most gained as a scholar from this project is a framework for doing future work that examines teaching-as-learning and the use of emotion as a critical component of examining engagement.

Further, Jenny Rice argues for expanding our notion of "public subjectivity" (196) that complicates our understanding of how individuals relate to their various contexts. This allows us to imagine, for example, a space for Laura that doesn't emphasize how she went against "the rules" of the Program and her sorority, but rather with an emphasis on how she crafted her own relationship to these discourses. Paula Mathieu argues for "broaden[ing] the scene of the writing classroom beyond the text, the writer and the classroom to explicitly introduce the community and world in which writing takes place" (57), and my findings suggest that, by giving students the opportunity and tools to explore the communities within which their writing and learning takes place, teachers are allowing their students to find their own individual paths toward broadening their academic learning.

The key difference between this kind of pedagogy and more traditional ones might be that we are not simply asking students to show us the end result of their work, but to engage in a certain kind of exercise that leads them to this end result. It might also make sense for us to

think of this performative knowledge as being similar to J.L. Austin's performative utterances: speech acts that do something rather than simply say something. Simply engaging in the process of a critical reading that involves both the self and the text happens in the pursuit of the "goal" of becoming a writer with something to say; the engagement itself, however, is also a goal worthy of its own pursuit. Rosa Eberly writes that "realizing classrooms as protopublic spaces and encouraging students to see themselves as actors in different and overlapping publics can help them realize the particular and situated nature of rhetoric" (167). The Eco-Rep program, in practice, treats the classroom as a protopublic space. How might composition teachers benefit from combining our pedagogical expertise with such a conception of the classroom? While the field of Comp-Rhet has long since undergone a disciplinary public turn, I suggest that we would also benefit from a public pedagogical turn; embracing that our students already have messy and complex lives outside of the classroom and turning this awareness into a two-way street. I suggest that the need for a protopublic pedagogy will only increase throughout the 21st century, and thinking of the classroom as a space inherently connected to the myriad publics that our students have access to will be a necessary, fruitful, and empowering disciplinary move for teachers and for students.

I would also like to re-affirm how this project has, for me, emphasized the importance of current peer-learning models that we do use in Composition and Rhetoric. By this, unsurprisingly, I suggest we look toward Writing Centers and peer tutoring models as an established kind of "public" engagement that we spent decades developing and refining. And yet, the Eco-Rep program, in my view, complicates this by modeling a layered approach to student teaching; each administrative layer has a different aspect of students-as-teachers. Further, the teaching at each layer is oriented differently; to peers, to newer students, and to student-teachers.

One of my next steps as a researcher is to critically examine emotion and engagement in peer tutoring as a phenomenon of public intellectualism that could be pushed even further.

Is public intellectualism something we even want? Yes, but it requires a shift away from the individual and to communal and localized, while not losing our awareness of the ways in which the individual experience is always contextualized within the publics we inhabit. What does it mean to be an Eco-Rep? I believe I have spent the last four chapters considering this, and I leave the reader with a related question: What would it mean to be a Comp-Rep or a Rhet-Rep?

Both my theoretical and pedagogical takeaways have been greatly influenced by my research site, and so I will close with a note about sustainability itself. As I have discussed throughout this project, the disciplinary stakes of Sustainability Studies directly involve the future of humanity. By thinking carefully about the circulation of knowledges and discourses, the ways in which we invite our new disciplinary initiates to engage what they learn in our classrooms in their communities, and the opportunities we give them (and ourselves) to teach one another, and to combine disciplinary participation with disciplinary creativity, I believe academics and nonacademics can involve themselves in the disciplinary project of sustainability: creating a world where understanding and interconnectedness work to improve our environments.

While I have numerously throughout suggested that there is something within the disciplinary makeup of Sustainability Studies and Environmental Science that lend them to outreach beyond their primary domains of meaning-making, I don't believe that fact excludes those in other disciplines should ignore this epistemological possibility. In fact, perhaps just the opposite: we might instead think about the future of our disciplines in terms of where we might

push them to reach outside of their domains and, where we find that they unequivocally cannot, we might revise them so they can. In order to do so, we might look yet again to the most basic yet perhaps most compelling domain of rhetoric: persuasion.

Thank you for reading.

APPENDIX A

LIST OF DATA COLLECTED AND REFERENCED

Interviews

Ann, 3/4/15
Jaime, 3/4/15
Pat, 3/7/15
Zhi, 2/20/15

Sarah, 2/12/15
Sarah, 4/28/15
Michael, 3/3/15
Michael, 4/5/15
Paul, 2/7/15
Paul, 4/29/15
Holly, 2/5/15
Holly, 4/27/15

Kevin, 6/15/15
Craig, 5/12/15

Written and Outreach Material

Ann, "Recycling and Earth Day Reflection" 2 pages
Ann, "Institutional Change" 3 pages
Ann, "Ishmael Vision" 1.5 pages
Ann, "Ishmael Reading Response" 1 page
Jaime, "Environment Unit Reflection: Life Cycle of a Florida Orange" 3 pages
Jaime, "Institutional Change Unit Reflection" 3 pages
Jaime, "Plans for Brockton Massachusetts" 2 pages
Jaime, Eco-Rep Poster
Jaime, True/False PowerPoint
Laura, "Recycling and Earth Day Reflection" 2 pages
Laura, "Outreach Reflection" 2 pages written correspondence
Laura, "Recycling Trivia Bowl" 20 pages
Pat, "Recycling Reflection" 3 pages
Pat, "Earth Day Reflection" 3 pages
Pat, "Field Trip Reflection" 2 pages
Pat, "Institutional Change Unit Reflection" 4 pages
Zhi, "Anthropocentrism Unit Reflection" 2 pages
Zhi, "Empowerment & Action Unit Reflection" 3 pages
Zhi, "Recycling: A Myth in Sycamore Hall" 3 pages

Sarah, “Final Reflection Letter” 3 pages
Michael, “Eco-Rep Final Reflection” 4 pages
Paul, “Final Reflection: Hope Endures” 3 pages
Holly, “Final Reflection” 3.5 pages

Observations

Sarah’s class, 2/12/15
Sarah’s class, 4/28/15
Michael’s class, 3/3/15
Michael’s class, 4/5/15
Paul’s class, 2/7/15
Paul’s class, 4/29/15
Holly’s class, 2/5/15
Holly’s class, 4/27/15

Eco-Rep Potluck, 5/5/15
Earth Day Activity #1
Earth Day Activity #2
Earth Day Activity #3
Lesson Planning Meeting, 2/8/15
Lesson Planning Meeting, 4/14/15

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